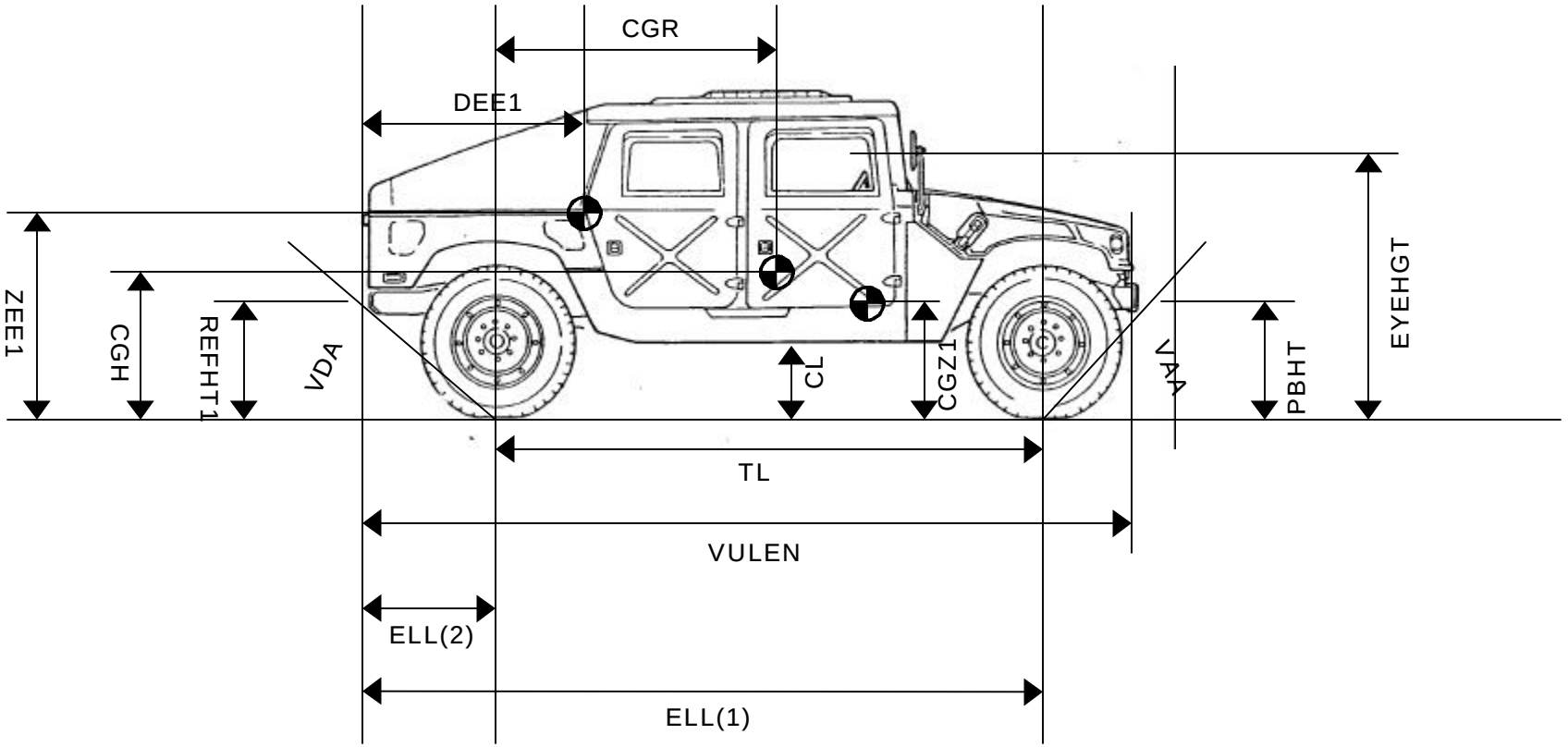
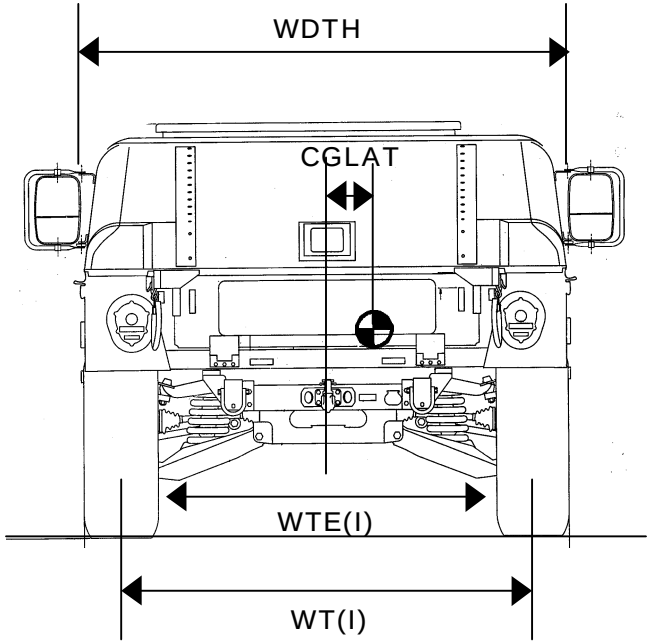
Wheeled First Unit Geometry - HFig1a

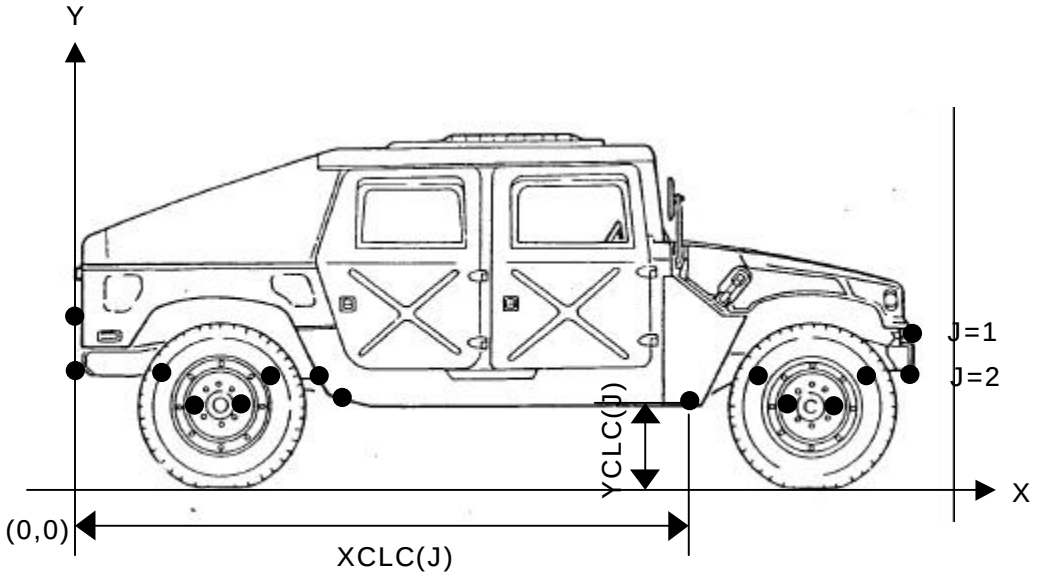


NOTE: CGH is the system CG height (combination of unloaded, CGZ1, and payload, ZEE1 CG's.

Wheeled First Unit Geometry - HFig1b

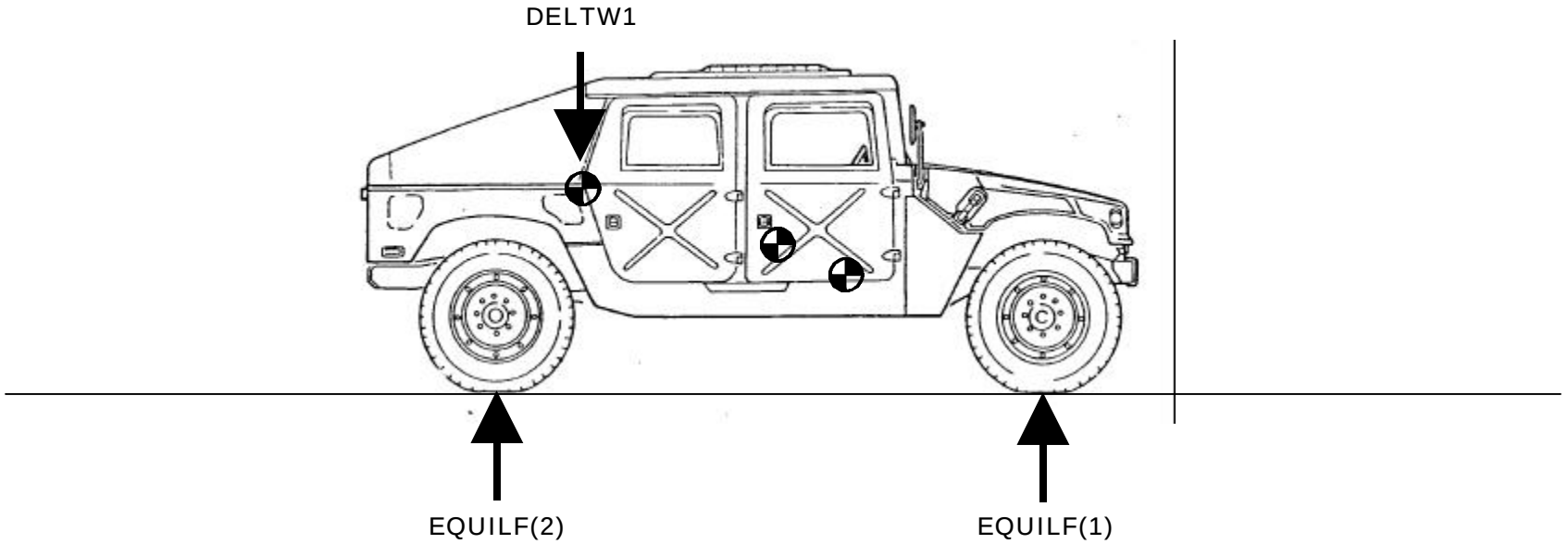


Wheeled First Unit Geometry - HFig1c

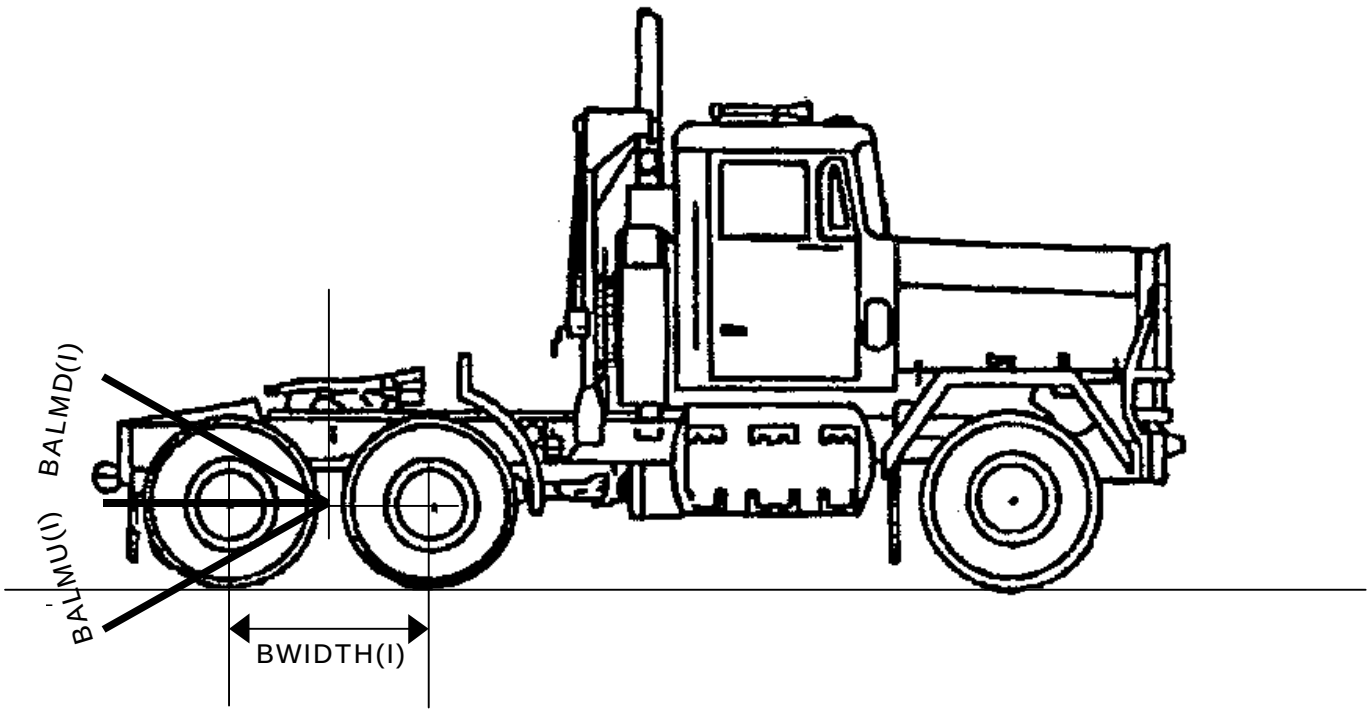


NOTE: Bottom profile points measured from the hitch but begin at the front of the vehicle I.e., XCLC(1) is the maximum distance.

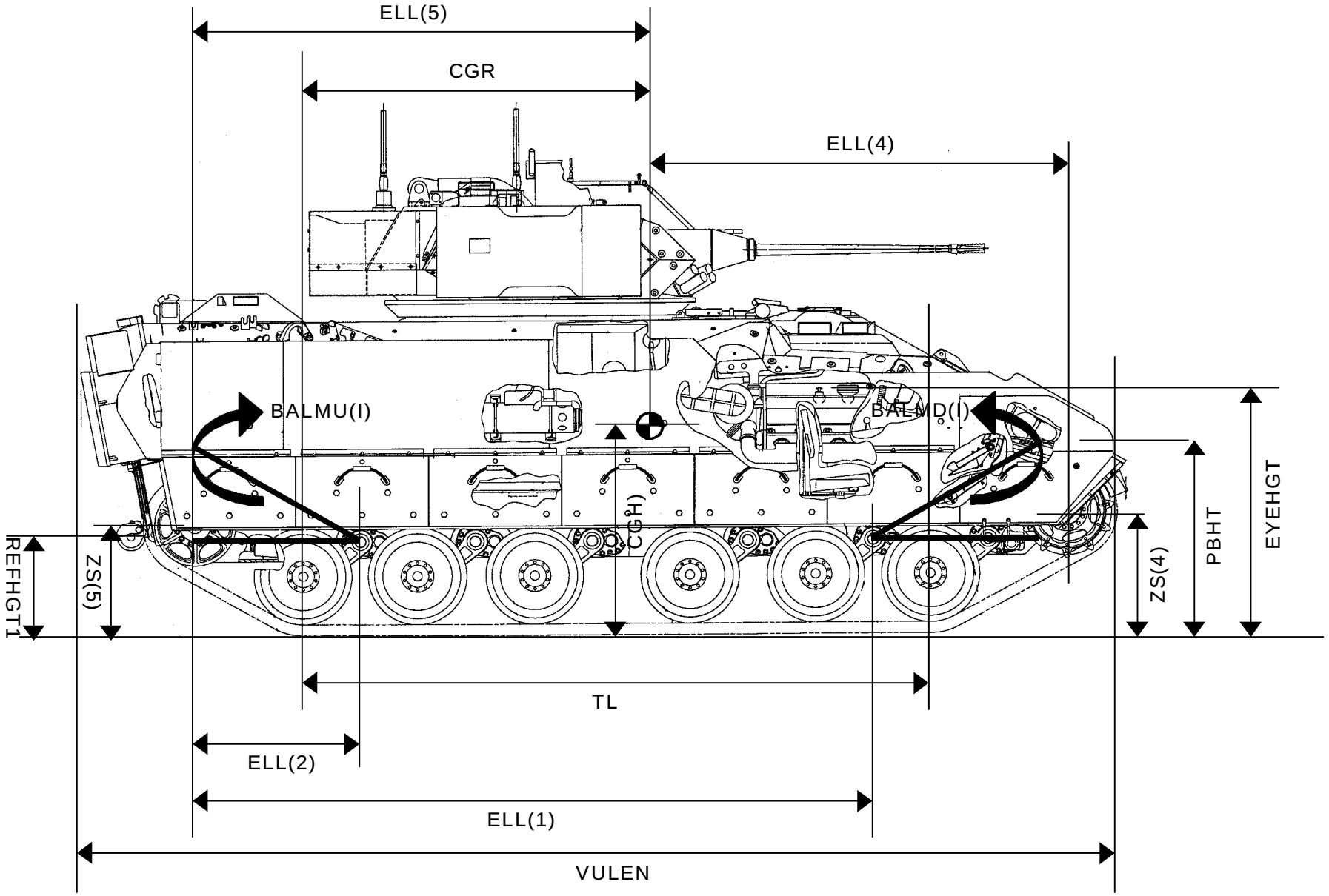
Wheeled First Unit Geometry - HFig1d



Wheeled First Unit Geometry - HFig1e

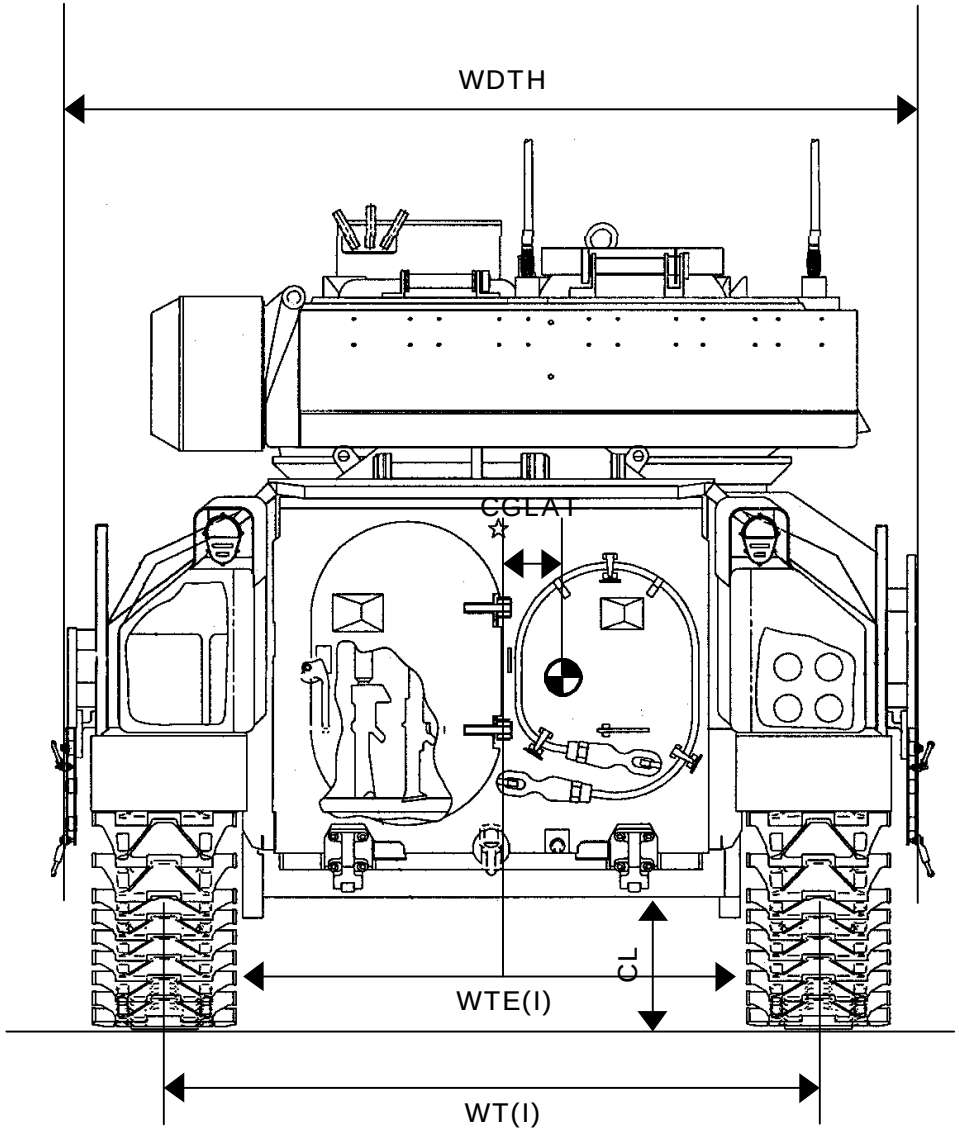


Tracked First Unit Geometry - HFig3a

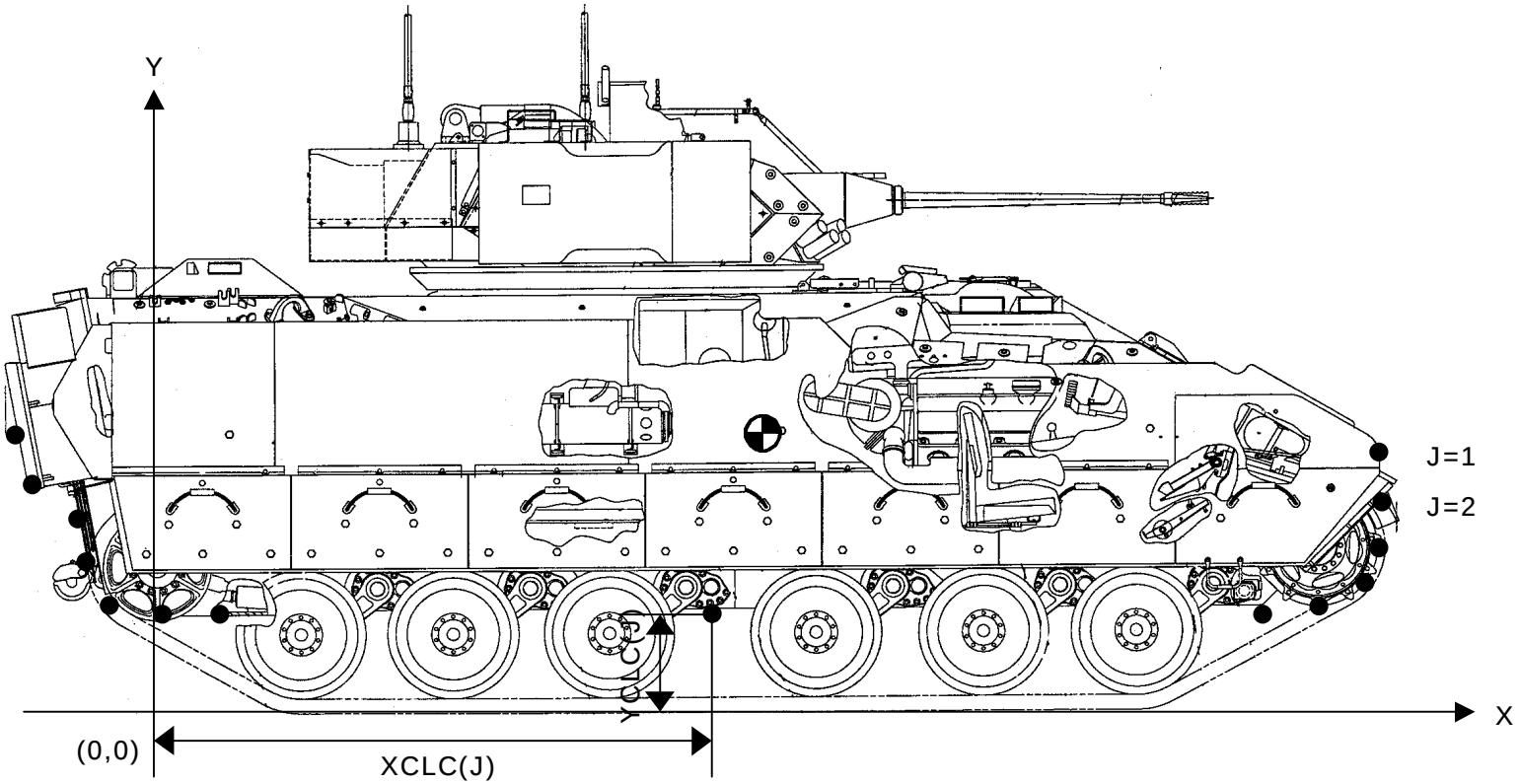


NOTE: C.G. height, CGH, is the combat loaded system C.G. height..

Tracked First Unit Geometry - HFig3b

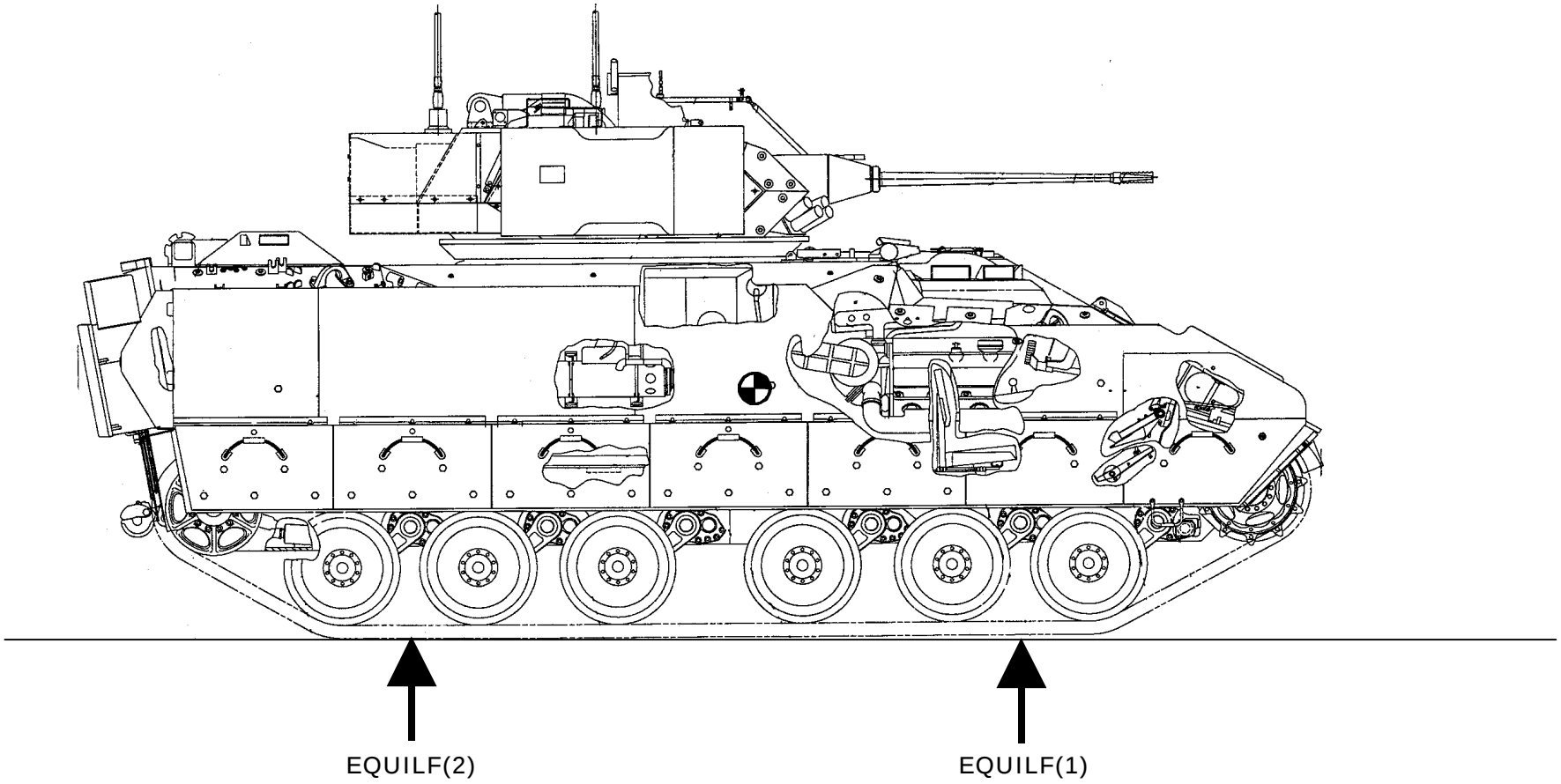


Tracked First Unit Geometry - HFig3c

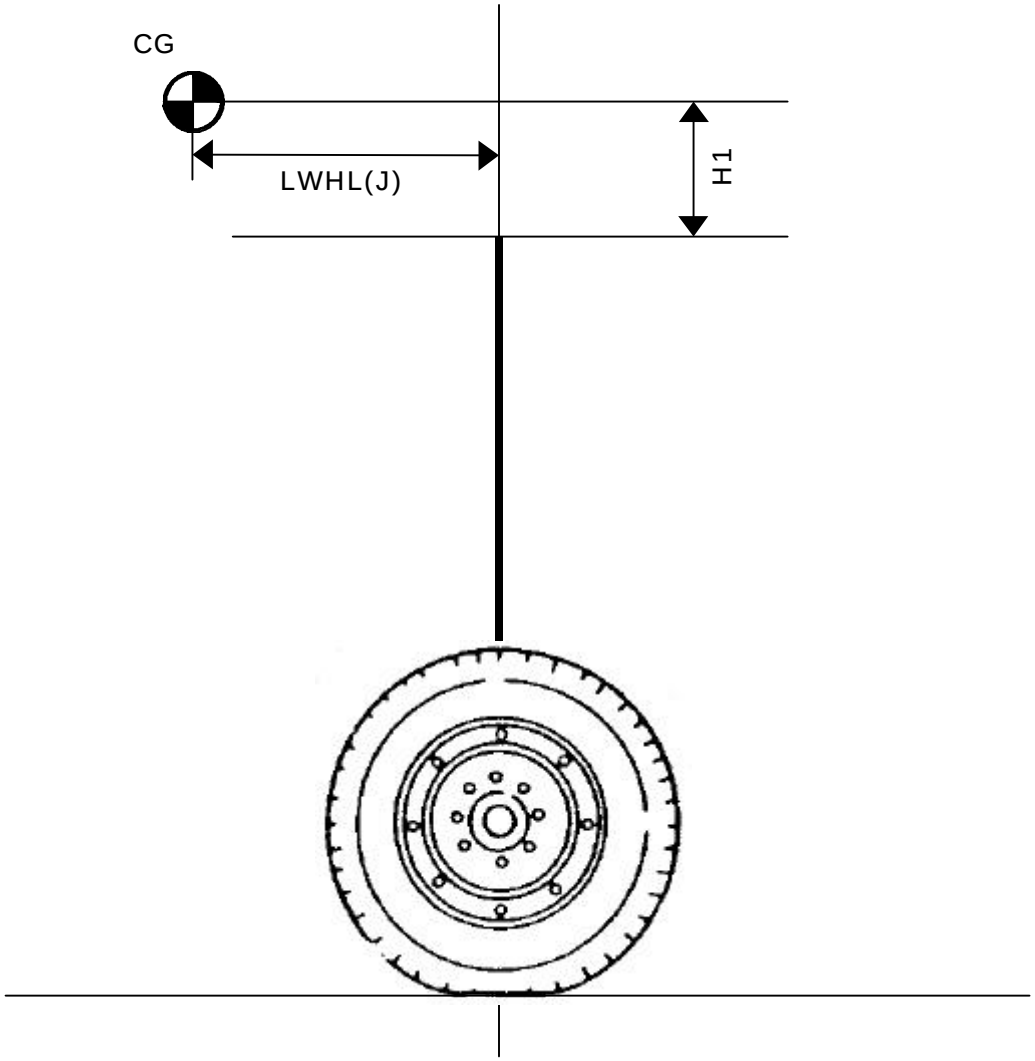


NOTE: Clearance contour distance, XCLC(J), measured from the centerline of the rear sprocket/idler.

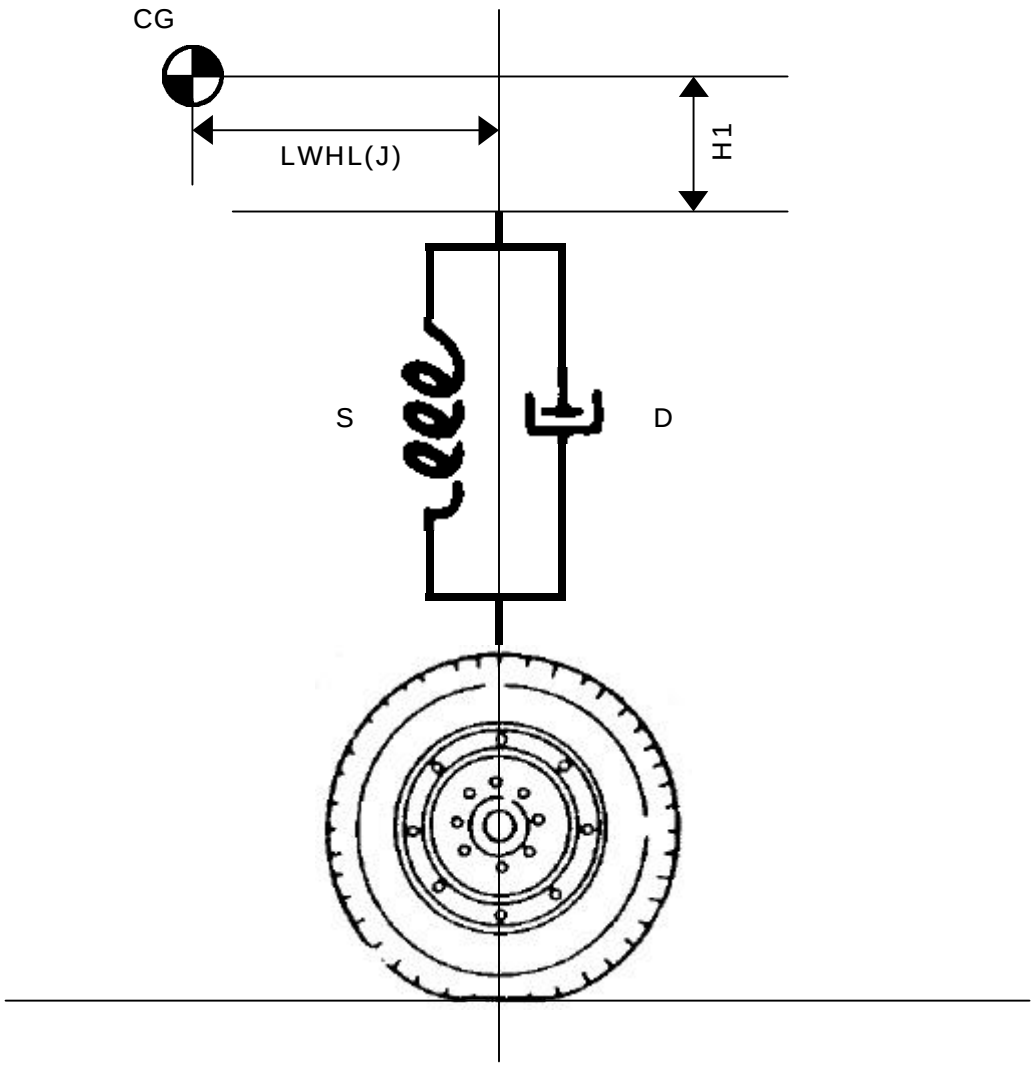
Tracked First Unit Geometry - HFig3d



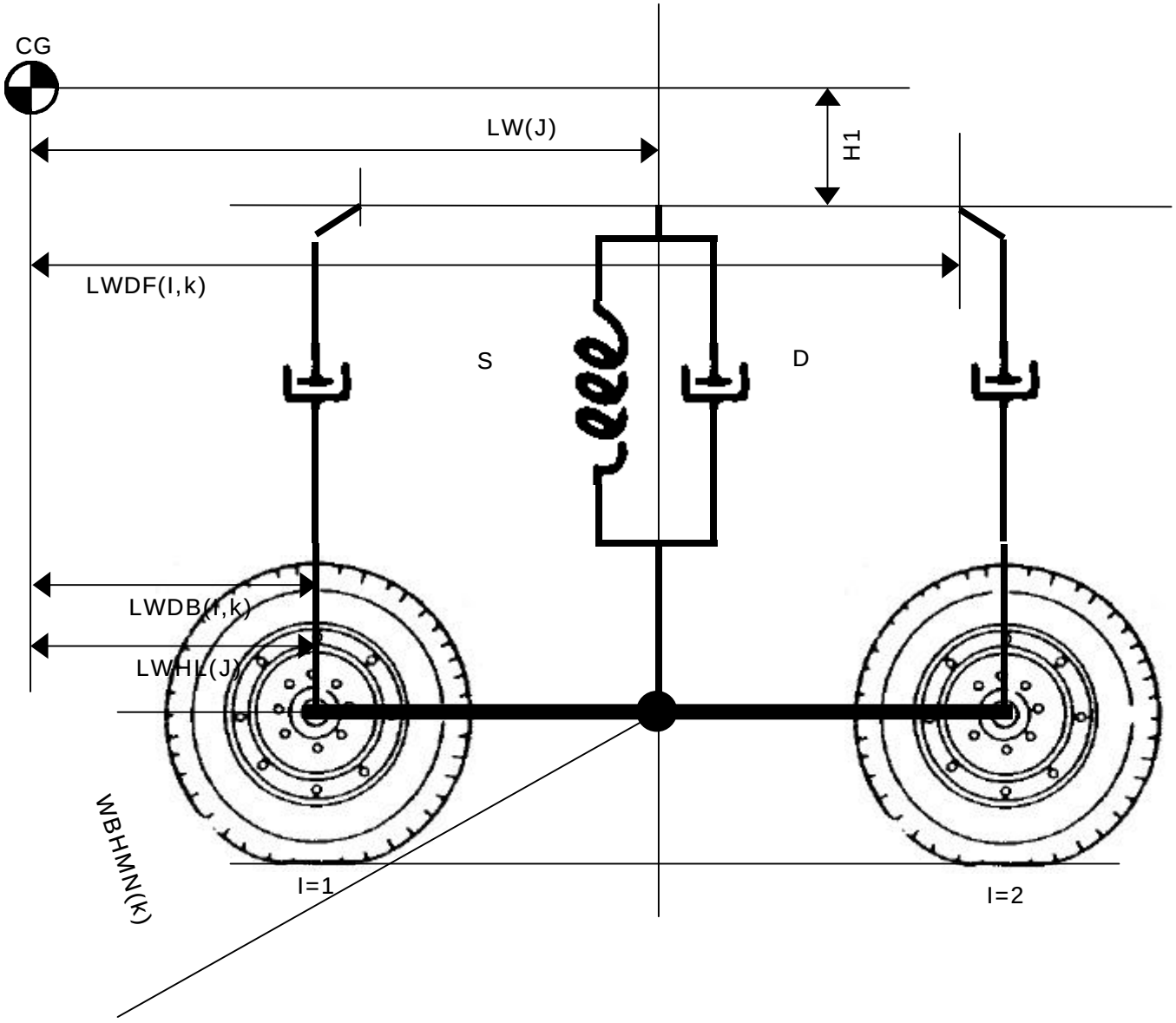
Unsprung (U) Suspension Type - DFiga



Independent (I) Suspension Type - DFigb

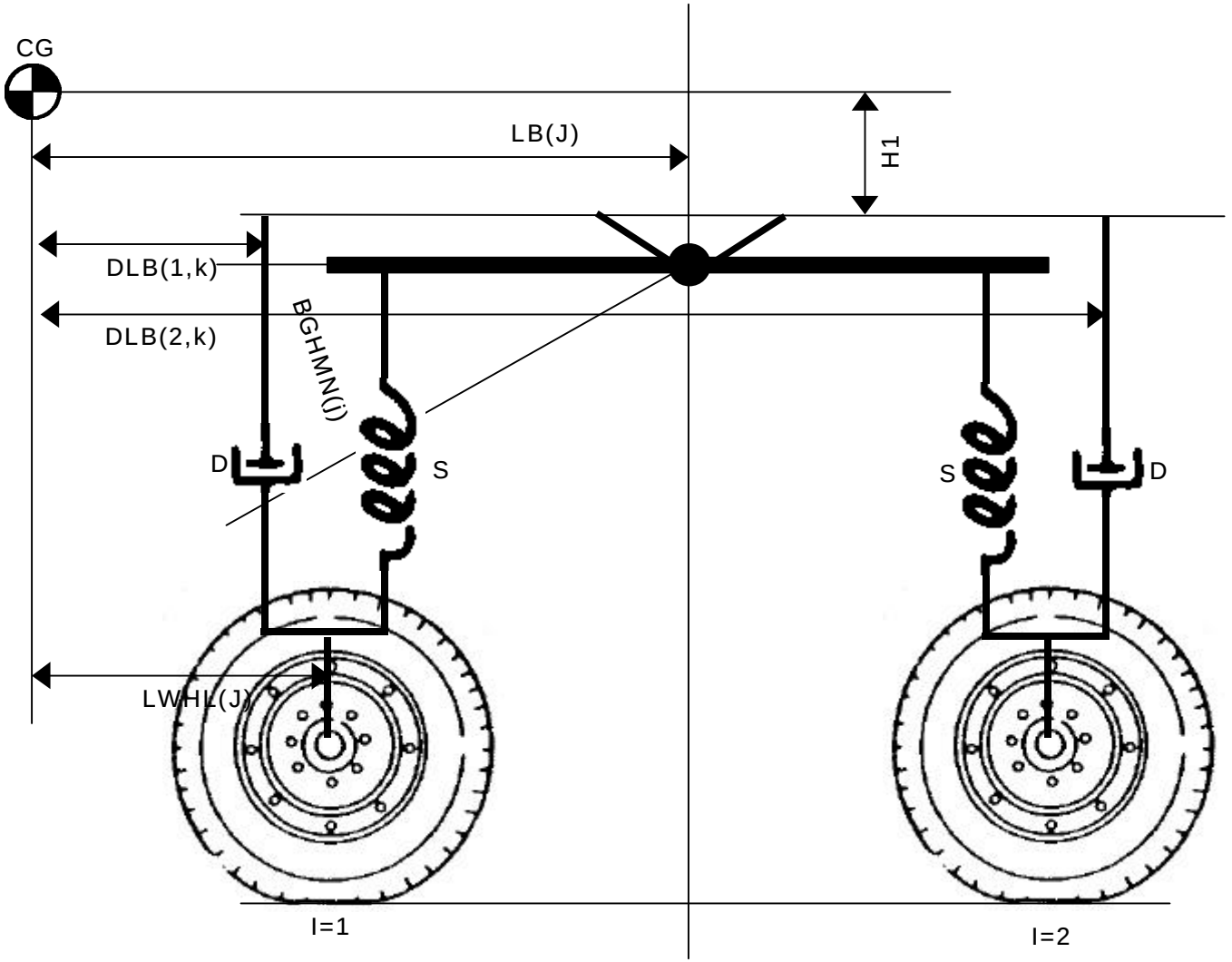


Walking Beam (WB) Suspension Type - DFigc



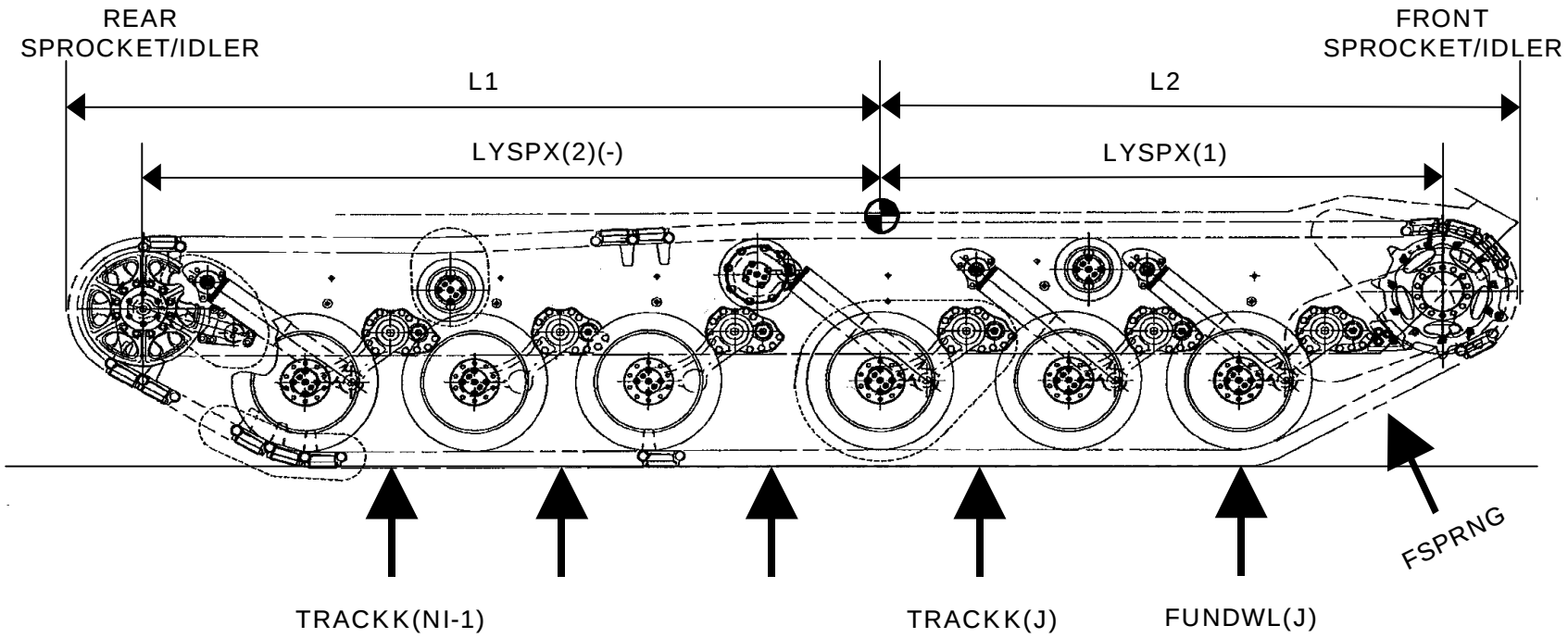
NOTE: k=walking beam suspension number, I=1 is fore, I=2 is aft.

Bogie (B) Suspension Type - DFigd

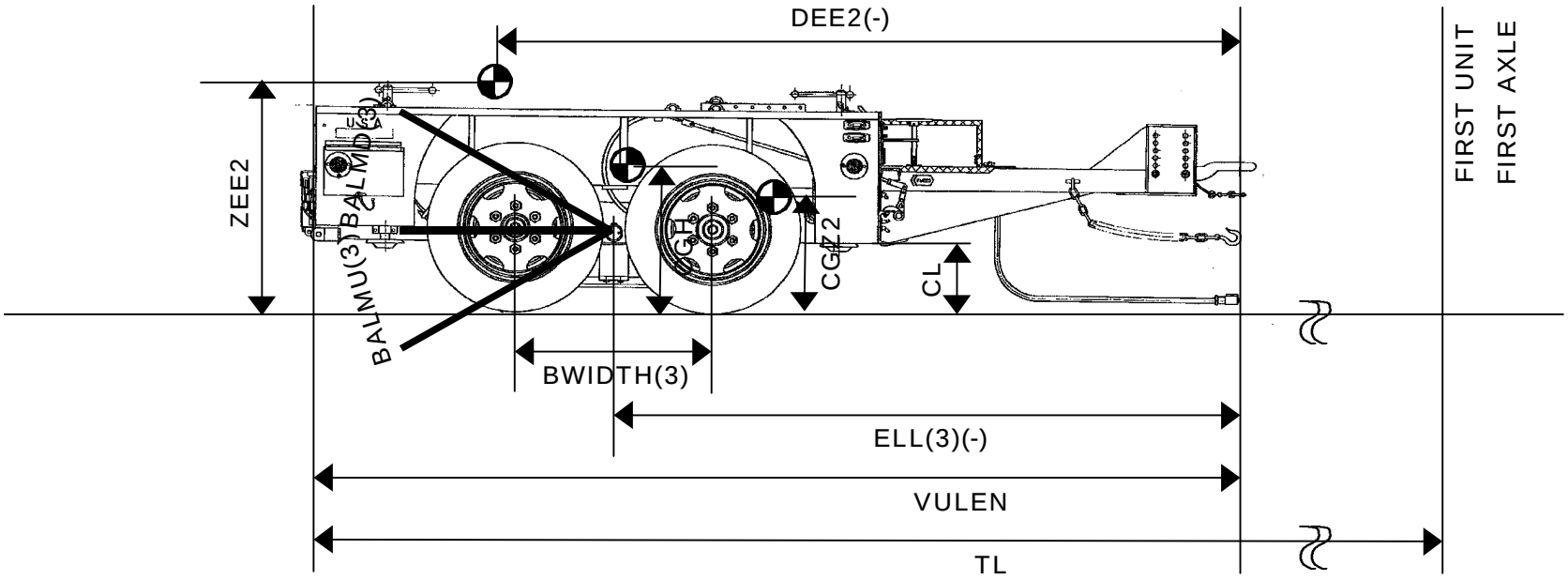


NOTE: k=walking beam suspension number, I=1 is fore, I=2 is aft.

Track Arrangement - DFige

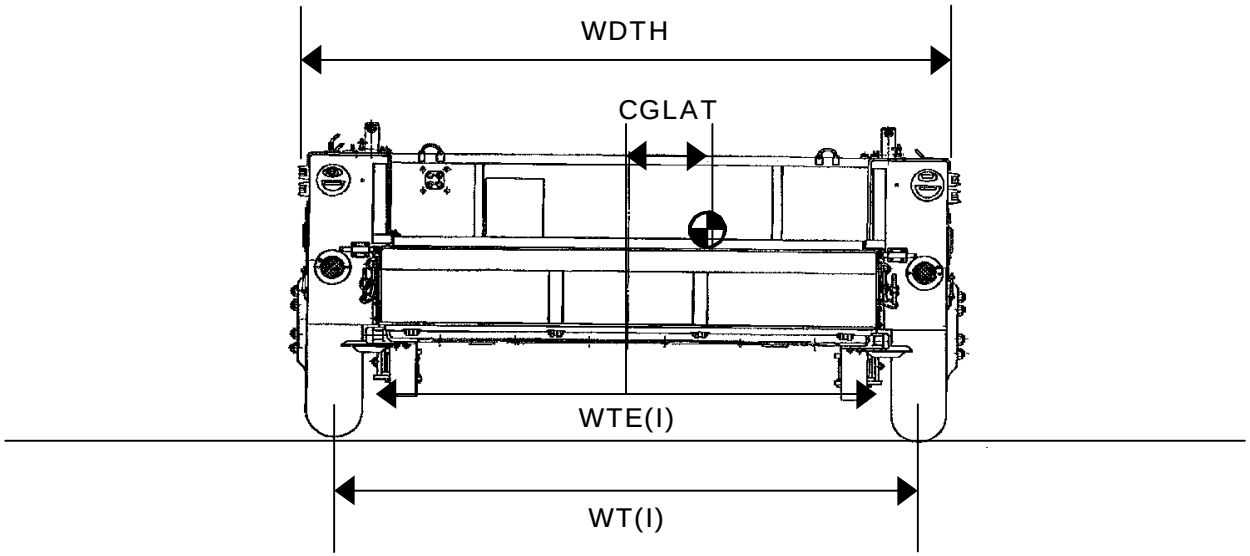


Wheeled Second Unit Geometry - HFig2a

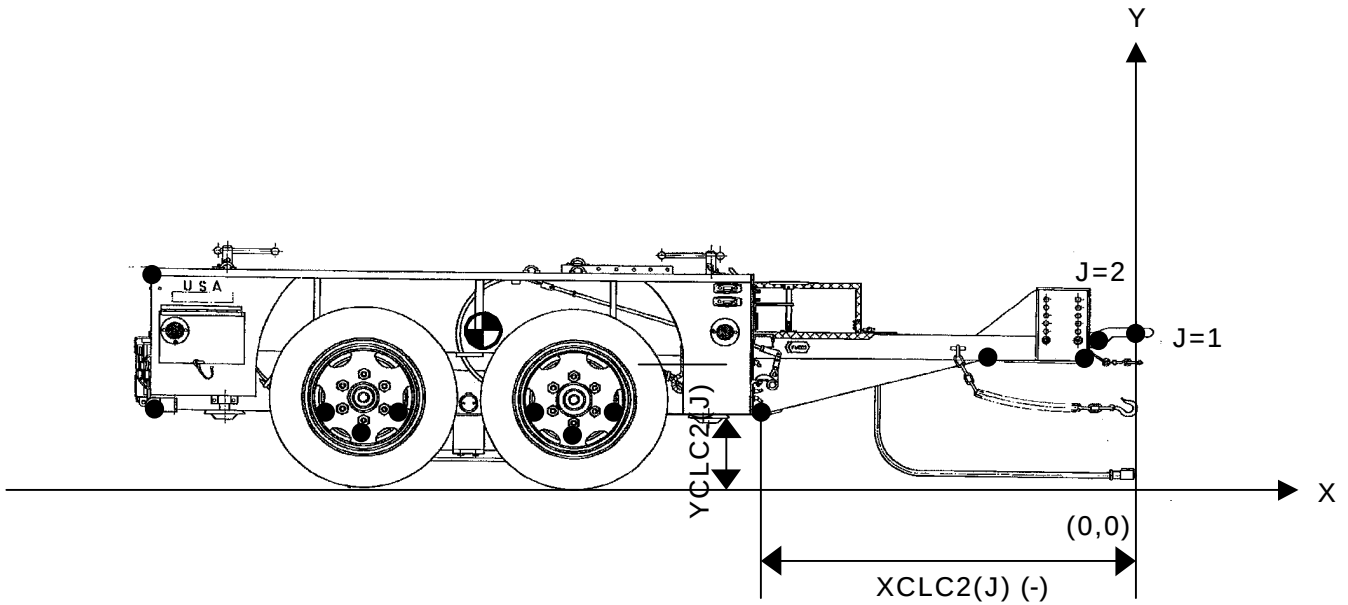


NOTE: CGH is the system CG height (combination of unloaded, CGZ2, and payload, ZEE2 CG's.

Wheeled Second Unit Geometry - HFig2b

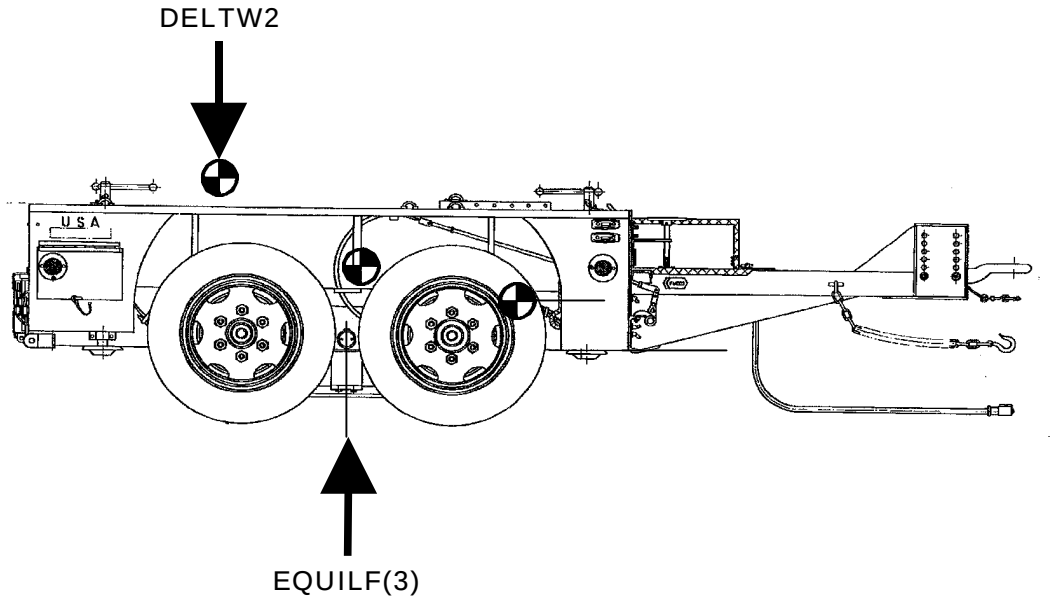


Wheeled Second Unit Geometry - HFig2c

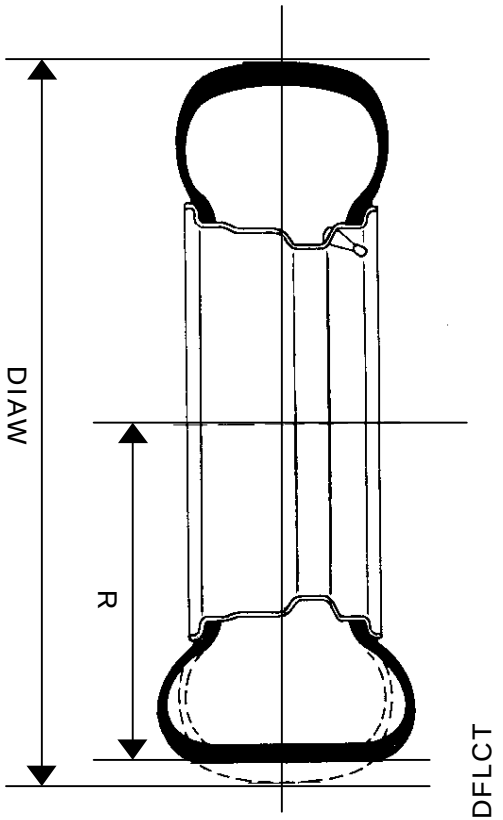


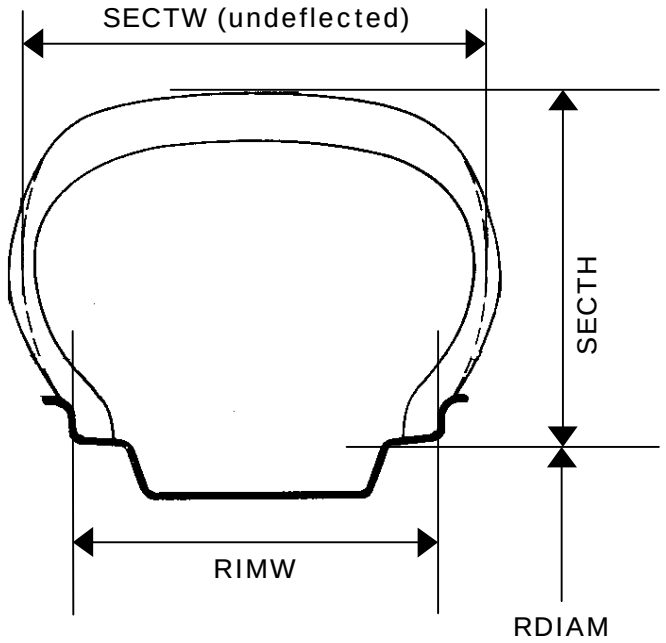
NOTE: Bottom profile points measured from the hitch, therefore all XCLC2(J) values are negative.

Wheeled Second Unit Geometry - HFig2d

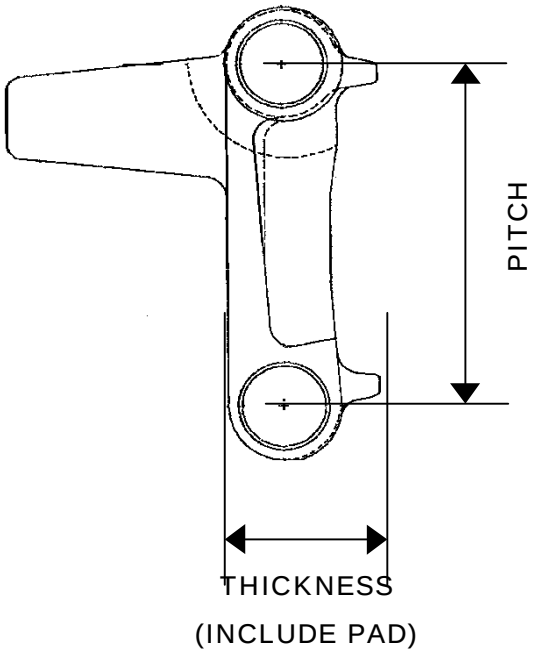


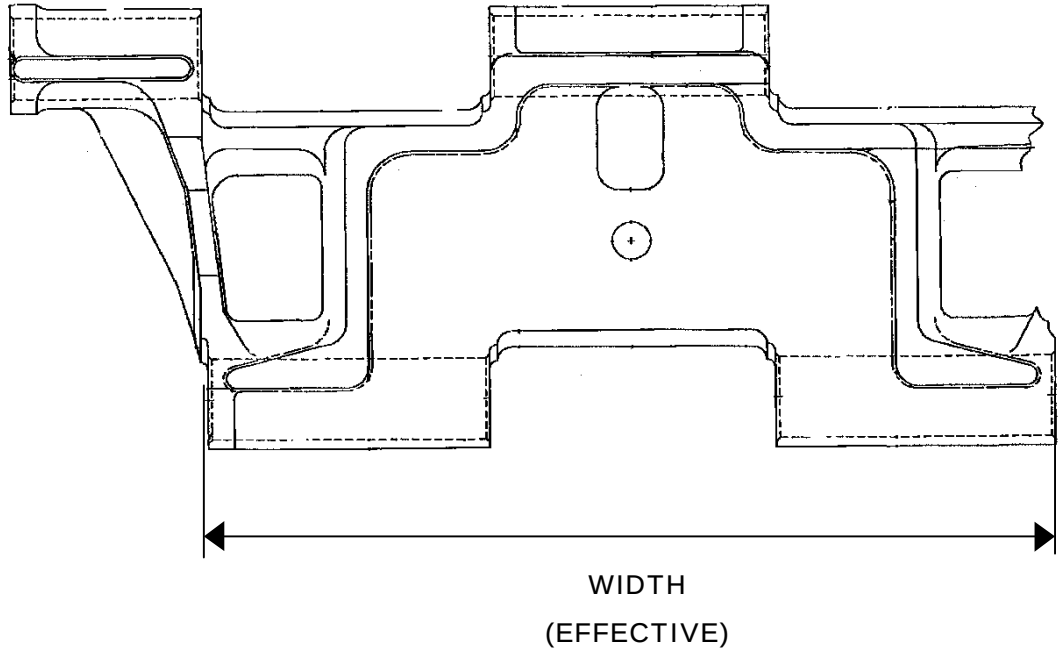
FIRST UNI
FIRSTAXLE





NOTE: SECTH=0.5(DIAW-RDIAM). %deflection = DFLCT/SECTH.


PITCH
THICKNESS
(INCLUDE PAD)


WIDTH
(EFFECTIVE)

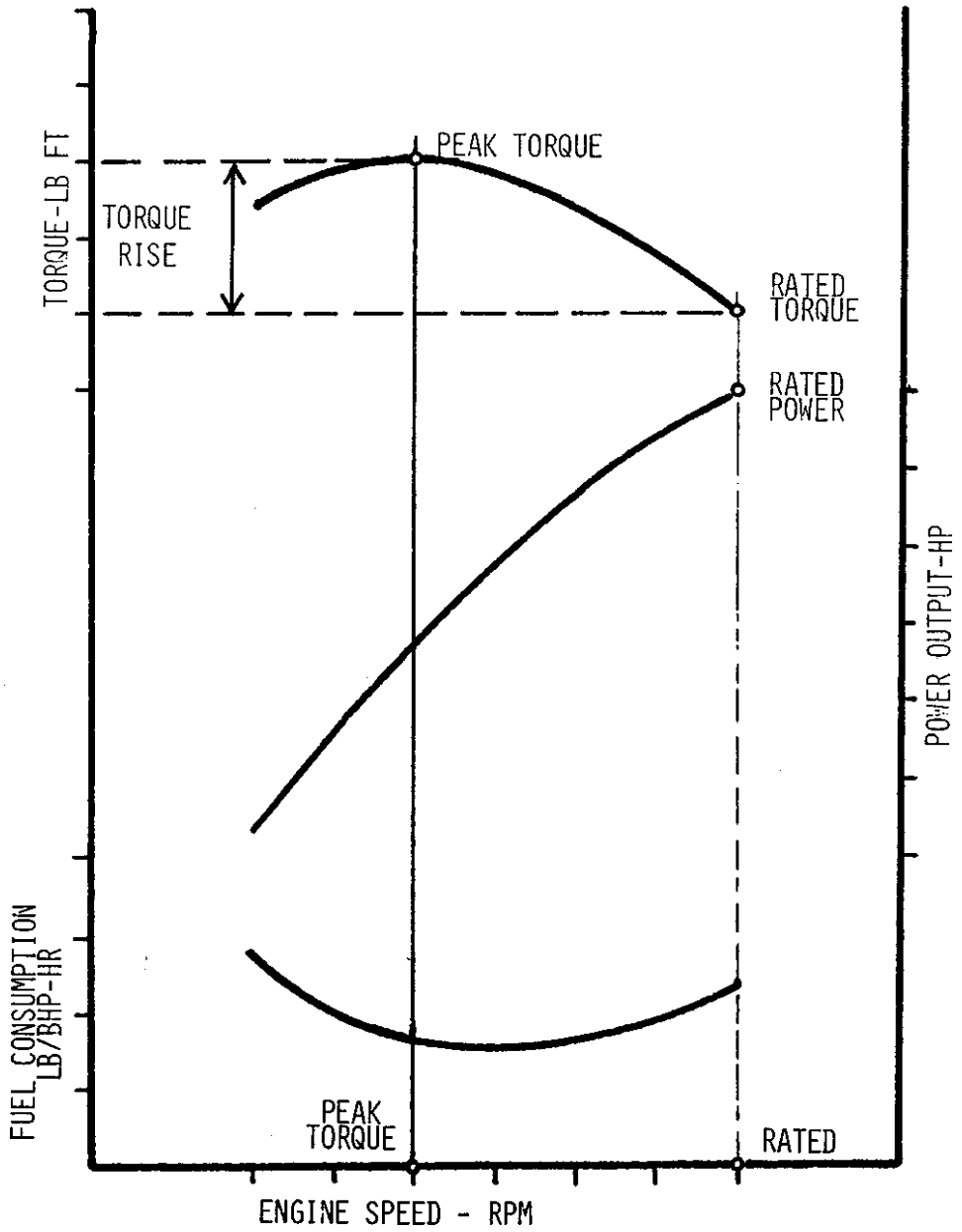


Figure 6-3. Engine Performance Chart - Torque Rise.

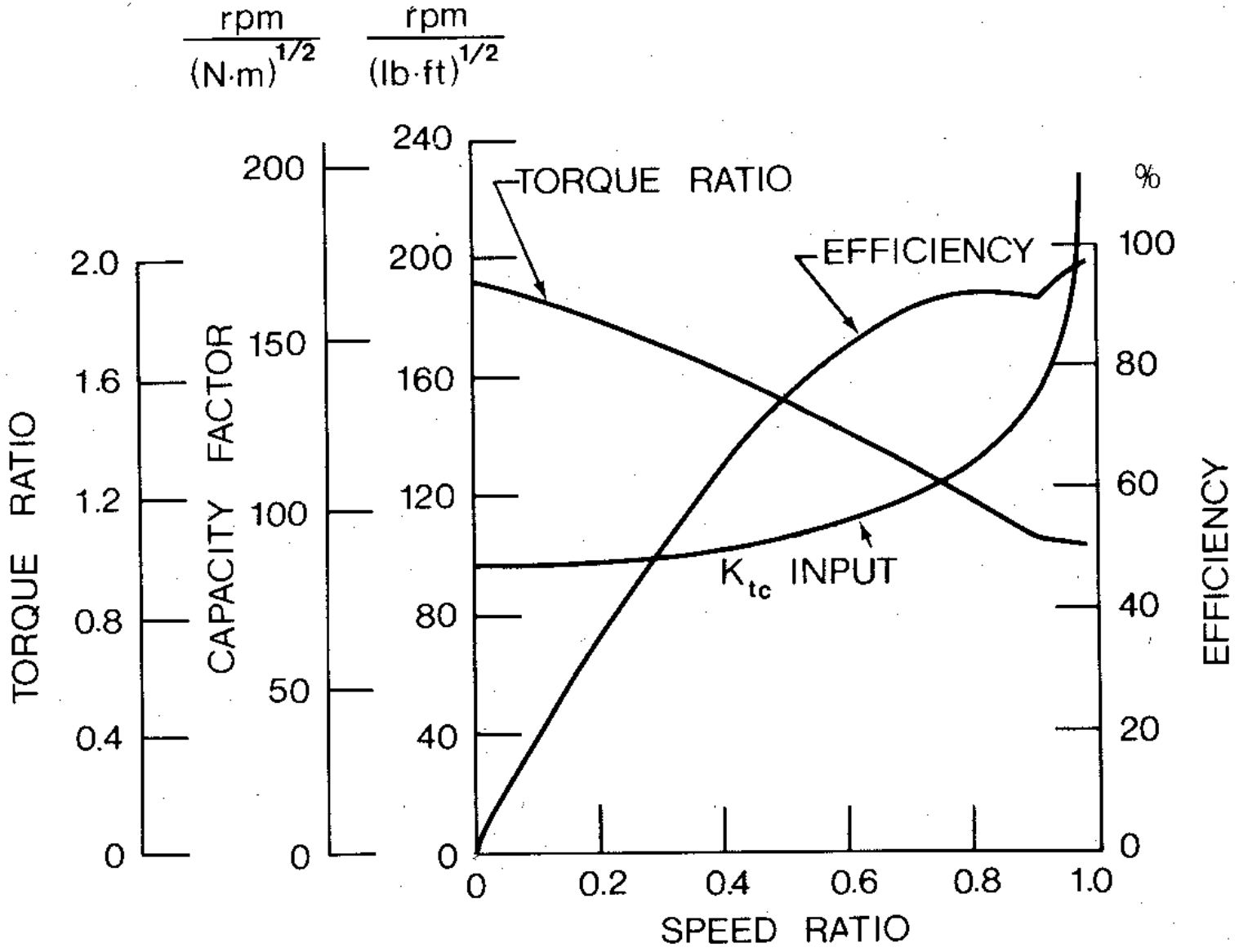


Fig. 3.15 Performance characteristics of a torque converter. (Reproduced by permission of the Society of Automotive Engineers from reference 3.7.)

Vehicle Identification - A

NAME	VALUE	DESCRIPTION
Vehicle Description		Vehicle
		Drive Train
		Engine
		Transmission
		Transfer Case
		Final Drive
VEHID		Vehicle Identification
VEHSIU		Vehicle data input units (0=English or 1=SI)
GCW		Gross Combination Weight
NVUNTS		No. of Tractor/Trailer units in vehicle combination
Vehicle/Tractor/First Unit		
GVW		Gross Vehicle
VMI		Sprung mass Pitch Moment of Inertia
DELTW1		Payload
Vehicle/Trailer/Second Unit		
GTW		Gross Trailer Weight
VMI2		Sprung mass Pitch Moment of Inertia
DELTW2		Payload

Wheeled First Unit Running Gear - BW1a

NAME	VALUE	DESCRIPTION
NAMBLY		Total number of axles
NSUSP		Total number of suspension assemblies
XBRCOF		Maximum braking coefficient
VSLIMX		Maximum sliding speed limit (0=computed internally)
VTIPMX		Maximum tipping speed limit (0=computed internally)

NAME	VALUE							DESCRIPTION
	1	2	3	4	5	6	7	Axle No./Suspension assembly No.
NVEH(I)								Type of traction assembly (0=tracked,1=wheeled)
WGHT(I)								Load beneath axle
(S) or (U)								Steered or Unsteered axle
IP(I)								Powered (1)/ Unpowered (0) axle
IB(I)								Braked(1)/Unbraked(0) axle
NWHL(I)								No. of tires on axle
ID(I)								Single(0)/Dual(1)
NCHAIN(I)								Chains(1)/None(0)
HROSUS(I)								Vertical Distance from vehicle role center to axle
WT(I)								Wheel track (centerline-centerline)
CLRMIN(I)								Ground clearance under axle
WTE(I)								Lateral clearance between inner tires on axle
AXLSP(I)								Interaxle spacing (axle I+1 to axle I)
IT(I)								Tandem axle (0=not, j=j part of the jth tandem)

NOTE: Axle combinations can be considered as a single assembly. For load support and suspension characteristics see HWVb, HFIG1, and HFIG2.

Wheeled First Unit Tire & Wheel Data - BW1b

NAME	VALUE	DESCRIPTION
TIREID(I)		Tire size designation (Tire & Rim Association) Tread type Manufacturers tire designation Rim type (Tire & Rim Association)

NAME	VALUE							DESCRIPTION
I	1	2	3	4	5	6	7	Axle No./Suspension assembly No./NVEH(I)=1
ICONST(I)								Bias ply (1) or Radial (0)
TPLY(I)								Tire ply rating or load range
DIAW(I)								Tire undeflected diameter
SECTH(I)								Tire section height
SECTW(I)								Tire section width
REVM(I)								Tire nominal revolutions per mile
RDIAM(I)								Rim diameter
RIMW(I)								Rim width
VFGVCI(I)								Single pass VCI for fine-grained soils
KTSFLG(I)								Hard surface tire stiffness index (0=not considered 1=flexible-hard surface rolling resistance < 0.02 2=medium-0.02 < hard surface rolling resistance < 0.03 3=stiff-hard surface rolling resistance > 0.035

Wheeled First Unit Tire & Wheel Data - BWTIR

The following data sheets, BW1c, BW1d, BW1e, and BW1f contain information with regard to possible tire deflections which can be slected for operation on different off-road and on-road surfaces. NRMM I contained three possible choices for tire deflection based upon operation on (1) roads, (2) off-road (fine-grained soil) and (3) mud-sand-snow. The user selected one of two operating scenarios during execution of the main module. The tire deflection could either be governed by (1) the surface type (road, off-road, or mud-sand-snow) or (2) be fixed by the user regardless by the surface type upon which the vehicle was operating.

NRMMII expands these options to accommodate the wide range of tire operating inflation pressures afforded by a Central Tire Inflation Pressure System (CTIS) and permits the vehicle data developer to choose what tire deflection should be used depending upon the surface type. There are eight CTIS surface type scenarios (BW1f) for which the user can designate a tire deflection case. The vehicle data developer identifies how many tire deflection cases, NJPSI, are available for his vehicle. He then identifies the tire deflections, DFLCT(I,JPSI), for each axle assembly (I), and tire deflection case, JPSI, and which tire deflection case, JPSI, applies to each of the eight CTIS scenarios.

The options provided by this approach are: (1) a different tire deflection case for each CTIS operating cas scenario, that is, a total of eight different tire deflection cases. (2) the same tire deflection case applied to several CTIS operating scenarios, (less than eight tire deflection cases. (3) the same deflection case applied to all CTIS operating scenarios, (one tire deflection case).

Wheeled First Unit Tire Deflections - BW1c

NAME	VALUE	DESCRIPTION
CTIS		Central Tire Inflation Pressure System (Yes or No)
NJPSI		Number of tire deflection cases

NAME		VALUE							DESCRIPTION
	I	1	2	3	4	5	6	7	Axle/Susp. assembly No./NVEH(I)=1
	JPSI								
DFLCT(I,JPSI)	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								

NOTE: Tire deflection for each axle (I) and tire deflection case, JPSI. Tire deflection cases relate to the CTIS scenarios of data sheet BW1f.

Wheeled First Unit Tire Forces - BW1d

NAME		VALUE							DESCRIPTION
	I	1	2	3	4	5	6	7	Axle/Susp. assembly No./NVEH(I)=1
	JPSI								
ZFORCE(I)	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								

NOTE: Tire force for each axle (I) corresponding to deflection DFLCT(I,JPSI) from BW1c. Tire force to be used in VEHDYNII force-deflection relationship.

Wheeled First Unit Tire Inflation Pressures - BW1e

NAME		VALUE							DESCRIPTION
	I	1	2	3	4	5	6	7	Axle/Susp. assembly No./NVEH(I)=1
	JPSI								
TPSI(I,JPSI)	1								Tire inflation pressure
	2								
	3								
	4								
	5								
	6								
	7								
	8								

NOTE: Tire inflation pressure for each axle (I) and deflection case JPSI, psi. Tire deflection cases relate to the CTIS scenarios of data sheet BW1f.

Wheeled First Unit CTIS Scenarios - BW1f

NAME	VALUE	DESCRIPTION
JVPSI		Tire deflection case JPSI for which all relevant data developed-powertrain,pushbar height, min. clearance etc.

	JPSI		
KCTIOP(I)	1		Super highways & primary roads
	2		secondary roads
	3		C-G (sand) soils on trails
	4		other soils on trails
	5		Operation in snow on trails
	6		C-G (sand) soils off-road
	7		other soils off-road
	8		operation in snow off-road

	JPSI		
VTIRMX(JPSI)	1		Maximum speed for each tire deflection case
	2		
	3		
	4		
	5		
	6		
	7		
	8		

NOTE: Tire deflection cases of data sheets BW1c, BW1d, and BW1e relate to the CTIS scenarios of BW1f.

Wheeled First Unit Suspension Data - BW1g

NAME	VALUE	DESCRIPTION
NI		No. of independent suspensions
NB		No. of bogie suspensions
NW		No. of walking beam suspensions
NU		No. of unsprung suspensions
H1		C.G. height above the suspension attachment point to the frame
H2		Normal distance of the CG from the top of the vehicle
L1		Longitudinal distance of the CG from the rear most point on the vehicle
L2		Longitudinal distance of the CG from the forward most point on the vehicle

NAME	VALUE							DESCRIPTION
	1	2	3	4	5	6	7	Axle No./Suspension assembly No.
								Suspension type(I=independent,U=unsprung,WB=walki
								Total suspension travel-single wheel/front wheel
								Total suspension travel-rear wheel
RAID(I)								Mean stiffness of axle assembly suspension springs

NOTE: All CG dimensions refer to the sprung mass unless otherwise stated. See DFIg

Wheeled First Unit Suspension Data - BW1h

NAME	VALUE			DESCRIPTION
k or j	**1**	**2**	**3**	WB or BG axle No./NVEH(I)=1
WBPHMN(k) or BGPHMN(j)				Angular limit of travel before bump stop contact
WBRSTP(k) or BGSTRP(j)				Beam bogie rotational bump stop contact
WBRDMP(k) or BGRDMP(j)				Beam bogie rotational frictional damping moment
WBINRT(k) or BGINRT(j)				Beam bogie rotational moment of inertia

NAME	VALUE						DESCRIPTION
k or j	**1**		**2**		**3**		kth beam or jth bogie
Walking Beam only							
LW(k)							dis. from CG to beam pivot of kth waling beam (+ or -)
I	1	2	1	2	1	2	kth walking beam wheel number
LWDF(I,k)							dis. from CG->frame conn. Pt. of ith outboard damper
LWDB(I,k)							dis. from CG->beam conn. Pt. of ith outboard damper
Bogie Only							
LB(j)							Dis. from CG to bogie pivot point of jth bogie (+ or -)
BGANGL(j)							Initial orientation angle of jth bogie w.r.t. horizontal
ZBGPIV(j)							Height of jth bogie pivot point above the ground
i	1	2	1	2	1	2	jth bogie wheel number
DLB(I,j)							Dis. from CG->frame conn. pt. of ith damper to jth bog.

NOTE: All CG dimensions refer to the sprung mass unless otherwise stated. See DFIg

Wheeled Trailer/Second Unit Running Gear - BW2a

NAME	VALUE	DESCRIPTION
NAMBLY		Total number of axles
NSUSP		Total number of suspension assemblies
XBRCOF		Maximum braking coefficient
VSLIMX		Maximum sliding speed limit (0=computed internally)
VTIPMX		Maximum tipping speed limit (0=computed internally)

NAME	VALUE							DESCRIPTION
	1	2	3	4	5	6	7	Axle No./Suspension assembly No.
NVEH(I)								Type of traction assembly (0=tracked,1=wheeled)
WGHT(I)								Load beneath axle
(S) or (U)								Steered or Unsteered axle
IP(I)								Powered (1)/ Unpowered (0) axle
IB(I)								Braked(1)/Unbraked(0) axle
NWHL(I)								No. of tires on axle
ID(I)								Single(0)/Dual(1)
NCHAIN(I)								Chains(1)/None(0)
HROSUS(I)								Vertical Distance from vehicle role center to axle
WT(I)								Wheel track (centerline-centerline)
CLRMIN(I)								Ground clearance under axle
WTE(I)								Lateral clearance between inner tires on axle
AXLSP(I)								Interaxle spacing (axle I+1 to axle I)
IT(I)								Tandem axle (0=not, j=j part of the jth tandem)

NOTE: Axle combinations can be considered as a single assembly. For load support and suspension characteristics see HWVb, HFIG1, and HFIG2.

Wheeled Trailer/Second Unit Tire & Wheel Data - BW2b

NAME	VALUE	DESCRIPTION
TIREID(I)		Tire size designation (Tire & Rim Association) Tread type Manufacturers tire designation Rim type (Tire & Rim Association)

NAME	VALUE							DESCRIPTION
I	1	2	3	4	5	6	7	Axle No./Suspension assembly No./NVEH(I)=1
ICONST(I)								Bias ply (1) or Radial (0)
TPLY(I)								Tire ply rating or load range
DIAW(I)								Tire undeflected diameter
SECTH(I)								Tire section height
SECTW(I)								Tire section width
REVM(I)								Tire nominal revolutions per mile
RDIAM(I)								Rim diameter
RIMW(I)								Rim width
VFGVCI(I)								Single pass VCI for fine-grained soils
KTSFLG(I)								Hard surface tire stiffness index (0=not considered 1=flexible-hard surface rolling resistance < 0.02 2=medium-0.02 < hard surface rolling resistance < 0.03 3=stiff-hard surface rolling resistance > 0.035

Wheeled Trailer/Second Unit Tire Deflections - BW2c

NAME	VALUE	DESCRIPTION
CTIS		Central Tire Inflation Pressure System (Yes or No)
NJPSI		Number of tire deflection cases

NAME		VALUE							DESCRIPTION
	I	1	2	3	4	5	6	7	Axle/Susp. assembly No./NVEH(I)=1
	JPSI								
DFLCT(I,JPSI)	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								

NOTE: Tire deflection for each axle (I) and tire deflection case, JPSI. Tire deflection cases relate to the CTIS scenarios of data sheet BW1f.

Wheeled Trailer/Second Unit Tire Forces - BW2d

NAME		VALUE							DESCRIPTION
	I	1	2	3	4	5	6	7	Axle/Susp. assembly No./NVEH(I)=1
	JPSI								
ZFORCE(I)	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								

NOTE: Tire force for each axle (I) corresponding to deflection DFLCT(I,JPSI) from BW1c. Tire force to be used in VEHDYNII force-deflection relationship.

Wheeled Trailer/Second Unit Tire Inflation Pressures - BW2e

NAME		VALUE							DESCRIPTION
	I	1	2	3	4	5	6	7	Axle/Susp. assembly No./NVEH(I)=1
	JPSI								
TPSI(I,JPSI)	1								Tire inflation pressure
	2								
	3								
	4								
	5								
	6								
	7								
	8								

NOTE: Tire inflation pressure for each axle (I) and deflection case JPSI, psi. Tire deflection cases relate to the CTIS scenarios of data sheet BW2f.

Wheeled Trailer/Second Unit CTIS Scenarios - BW2f

NAME		VALUE	DESCRIPTION
JVPSI			Tire deflection case JPSI for which all relevant data developed-powertrain,pushbar height, min. clearance etc.
	JPSI		
KCTIOP(I)	1		Super highways & primary roads
	2		secondary roads
	3		C-G (sand) soils on trails
	4		other soils on trails
	5		Operation in snow on trails
	6		C-G (sand) soils off-road
	7		other soils off-road
	8		operation in snow off-road
	JPSI		
VTIRMX(JPSI)	1		Maximum speed for each tire deflection case
	2		
	3		
	4		
	5		
	6		
	7		
	8		

NOTE: Tire deflection cases of data sheets BW2c, BW2d, and BW2e relate to the CTIS scenarios of BW2f.

Tracked First Unit Running Gear - CTR1a

NAME	VALUE	DESCRIPTION
NAMBLY		Total No. of left-right pairs of tracked assemblies
XBRCOF		Maximum braking coefficient

NAME	VALUE			DESCRIPTION
	1	2	3	Axle No./Suspension assembly No./NVEH(I)=0
NVEH(I)				Type of traction assembly (0=tracked,1=wheeled)
WGHT(I)				Oper. Load beneath left-right pair of tracks
IP(I)				Powered (1)/ Unpowered (0) axle
IB(I)				Braked(1)/Unbraked(0) axle
NFL(I)				Track type (1=flexible or 0=girderized)
RW(I)				Roadwheel radius plus track thickness
HROSUS(I)				Vert. Dis. from veh. role center to assembly centerline
WT(I)				Wheel track (centerline-centerline)
CLRMIN(I)				Ground clearance under axle
WTE(I)				Lateral clearance between inner tires on axle
TRAKLN(I)				Track length on ground
TRAKWD(I)				Width of a single track (one side)
				Track thickness
				Track pitch
NPAD(I)				Track pads (0=no pads or 1=pads)
ASHOE(I)				Area of one track shoe (pitch x width)
				Removeable road pads (Yes or No)
GROUSH(I)				Grouser Height (From track shoe face to road pad exterior surf.)
VFGVCI(I)				Single pass VCI for fine-grained soils

NOTE: See HFig3.

Tracked First Unit Running Gear - CTR1b

NAME	VALUE	DESCRIPTION
NSPX		No. of sprockets/idlers (spridlers) - 0, 1, or 2
NWB		No. of the foremost roadwheel contained within the track envelope
NEW		No. of the rearmost roadwheel contained within the track envelope
VSLIMX		Max. sliding speed limit (if 0 computed internally)
VTIPMX		Max. tipping speed limit (if 0 computed internally)

NAME	VALUE			DESCRIPTION
	1	2	3	Axle No./Suspension assembly No./NVEH(I)=0
SXDEFL(1)				Front sprocket/idler deflection
SXFORCE(1)				Front sprocket/idler force corresponding to above deflection
SXDEFL(2)				Rear sprocket/idler deflection
SXFORCE(2)				Rear sprocket/idler force corresponding to above deflection
ZSPX(1)				Height of front sprocket/idler centerline above ground
ZSPX(2)				Height of rear sprocket/idler centerline above ground
LYSPX(1)				Longitudinal distance of front sprocket/idler centerline from CG
LYSPX(2)				Longitudinal distance of rear sprocket/idler centerline from CG
RAD(1)				Front sprocket/idler radius plus track thickness
RAD(2)				Rear sprocket/idler radius plus track thickness
FSPRNG				Spring constant of leading track section (flank) normal to track
TRACKK(j)				Spring constant of equivalent track interconnecting spring
REVM(I)				Sprocket revolutions/mile

NOTE: All CG dimensions refer to the sprung mass unless otherwise stated. See DFIg.

Tracked First Unit Suspension Data - CTR1c

NAME	VALUE	DESCRIPTION
NSUSP		Total No. of suspensions
NI		No. of independent suspensions
NB		No. of bogie suspensions
NW		No. of walking beam suspensions
NU		No. of unsprung suspensions
H1		C.G. height above the suspension attachment point to the frame
H2		Normal distance of the CG from the top of the vehicle
L1		Longitudinal distance of the CG from the rear most point on the vehicle
L2		Longitudinal distance of the CG from the forward most point on the vehicle

NAME	VALUE							DESCRIPTION
	1	2	3	4	5	6	7	Axle No./Suspension assembly No.
								Susp. type(I=ind.,U=unsprg,WB=walk. beam,BG=bogie
								Total suspension travel-single wheel/front wheel
								Total suspension travel-rear wheel
RAID(I)								Mean stiffness of axle assembly suspension springs

NOTE: All CG dimensions refer to the sprung mass unless otherwise stated. See DFIg.

Tracked First Unit Suspension Data - CTR1d

NAME	VALUE			DESCRIPTION
k or j	**1**	**2**	**3**	WB or BG axle No./NVEH(I)=0
WBPHMN(k) or BGPHMN(j)				Angular limit of travel before bump stop contact
WBRSTP(k) or BGSTRP(j)				Beam bogie rotational bump stop contact
WBRDMP(k) or BGRDMP(j)				Beam bogie rotational frictional damping moment
WBINRT(k) or BGINRT(j)				Beam bogie rotational moment of inertia

NAME	VALUE						DESCRIPTION
k or j	**1**		**2**		**3**		kth beam or jth bogie
Walking Beam only							
LW(k)							dis. from CG to beam pivot of kth waling beam (+ or -)
I	1	2	1	2	1	2	kth walking beam wheel number
LWDF(I,k)							dis. from CG->frame conn. Pt. of ith outboard damper
LWDB(I,k)							dis. from CG->beam conn. Pt. of ith outboard damper
Bogie Only							
LB(j)							Dis. from CG to bogie pivot point of jth bogie (+ or -)
BGANGL(j)							Initial orientation angle of jth bogie w.r.t. horizontal
ZBGPIV(j)							Height of jth bogie pivot point above the ground
i	1	2	1	2	1	2	jth bogie wheel number
DLB(I,j)							Dis. from CG->frame conn. pt. of ith damper to jth bog.

NOTE: All CG dimensions refer to the sprung mass unless otherwise stated. See DFIg.

Tracked Second Unit Running Gear - CTR2a

NAME	VALUE	DESCRIPTION
NAMBLY		Total No. of left-right pairs of tracked assemblies
XBRCOF		Maximum braking coefficient

NAME	VALUE			DESCRIPTION
	1	2	3	Axle No./Suspension assembly No./NVEH(I)=0
NVEH(I)				Type of traction assembly (0=tracked,1=wheeled)
WGHT(I)				Oper. Load beneath left-right pair of tracks
IP(I)				Powered (1)/ Unpowered (0) axle
IB(I)				Braked(1)/Unbraked(0) axle
NFL(I)				Track type (1=flexible or 0=girderized)
RW(I)				Roadwheel radius plus track thickness
HROSUS(I)				Vert. Dis. from veh. role center to assembly centerline
WT(I)				Wheel track (centerline-centerline)
CLRMIN(I)				Ground clearance under axle
WTE(I)				Lateral clearance between inner tires on axle
TRAKLN(I)				Track length on ground
TRAKWD(I)				Width of a single track (one side)
				Track thickness
				Track pitch
NPAD(I)				Track pads (0=no pads or 1=pads)
ASHOE(I)				Area of one track shoe (pitch x width)
				Removeable road pads (Yes or No)
GROUSH(I)				Grouser Height (From track shoe face to road pad exterior surf.)
VFGVCI(I)				Single pass VCI for fine-grained soils

Tracked Second Unit Running Gear - CTR2b

NAME	VALUE	DESCRIPTION
NSPX		No. of sprockets/idlers (spridlers) - 0, 1, or 2
NWB		No. of the foremost roadwheel contained within the track envelope
NEW		No. of the rearmost roadwheel contained within the track envelope
VSLIMX		Max. sliding speed limit (if 0 computed internally)
VTIPMX		Max. tipping speed limit (if 0 computed internally)

NAME	VALUE			DESCRIPTION
	1	2	3	Axle No./Suspension assembly No./NVEH(I)=0
SXDEFL(1)				Front sprocket/idler deflection
SXFORCE(1)				Front sprocket/idler force corresponding to above deflection
SXDEFL(2)				Rear sprocket/idler deflection
SXFORCE(2)				Rear sprocket/idler force corresponding to above deflection
ZSPX(1)				Height of front sprocket/idler centerline above ground
ZSPX(2)				Height of rear sprocket/idler centerline above ground
LYSPX(1)				Longitudinal distance of front sprocket/idler centerline from CG
LYSPX(2)				Longitudinal distance of rear sprocket/idler centerline from CG
RAD(1)				Front sprocket/idler radius plus track thickness
RAD(2)				Rear sprocket/idler radius plus track thickness
FSPRNG				Spring constant of leading track section (flank) normal to track
TRACKK(j)				Spring constant of equivalent track interconnecting spring
REVM(I)				Sprocket revolutions/mile

Tracked Second Unit Suspension Data - CTR2c

NAME	VALUE	DESCRIPTION
NSUSP		Total No. of suspensions
NI		No. of independent suspensions
NB		No. of bogie suspensions
NW		No. of walking beam suspensions
NU		No. of unsprung suspensions
H1		C.G. height above the suspension attachment point to the frame
H2		Normal distance of the CG from the top of the vehicle
L1		Longitudinal distance of the CG from the rear most point on the vehicle
L2		Longitudinal distance of the CG from the forward most point on the vehicle

NAME	VALUE							DESCRIPTION
	1	2	3	4	5	6	7	Axle No./Suspension assembly No.
								Susp. type(I=ind.,U=unsprg,WB=walk. beam,BG=bogie
								Total suspension travel-single wheel/front wheel
								Total suspension travel-rear wheel
RAID(I)								Mean stiffness of axle assembly suspension springs

NOTE: All CG dimensions refer to the sprung mass unless otherwise stated. See DFIg.

Tracked Second Unit Suspension Data - CTR2d

NAME	VALUE			DESCRIPTION
k or j	**1**	**2**	**3**	WB or BG axle No./NVEH(I)=0
WBPHMN(k) or BGPHMN(j)				Angular limit of travel before bump stop contact
WBRSTP(k) or BGSTRP(j)				Beam bogie rotational bump stop contact
WBRDMP(k) or BGRDMP(j)				Beam bogie rotational frictional damping moment
WBINRT(k) or BGINRT(j)				Beam bogie rotational moment of inertia

NAME	VALUE						DESCRIPTION
k or j	**1**		**2**		**3**		kth beam or jth bogie
Walking Beam only							
LW(k)							dis. from CG to beam pivot of kth waling beam (+ or -)
I	1	2	1	2	1	2	kth walking beam wheel number
LWDF(I,k)							dis. from CG->frame conn. Pt. of ith outboard damper
LWDB(I,k)							dis. from CG->beam conn. Pt. of ith outboard damper
Bogie Only							
LB(j)							Dis. from CG to bogie pivot point of jth bogie (+ or -)
BGANGL(j)							Initial orientation angle of jth bogie w.r.t. horizontal
ZBGPIV(j)							Height of jth bogie pivot point above the ground
i	1	2	1	2	1	2	jth bogie wheel number
DLB(I,j)							Dis. from CG->frame conn. pt. of ith damper to jth bog.

NOTE: All CG dimensions refer to the sprung mass unless otherwise stated. See DFIg.

Suspension Spring and Damper Information - DSUSa

NAME	VALUE	DESCRIPTION
NSTABL		No. of unique spring-deflection tables
NDTABL		No. of unique damper force-deflection tables
NDMTBP		No. of unique damper modification coefficient (DMC) deflection tables for positive velocities
NDMTBN		No. of unique damper modification coefficient (DMC) deflection tables for negative velocities

NAME	VALUE							DESCRIPTION
j	1	2	3	4	5	6	7	Unique spring/damper table number
	SPRING DATA							
NSLOAD(j)								No. of data points in the spring curve loading portion
NSUNLD(j)								No. of data points in the spring curve unloading portion
ATSPOS(j)								coeff. A1 of spring transition function F() (lb.)
BTSPOS(j)								exp. Coeff. B1 of spring transition function F() (1/in)
ATSNEG(j)								coeff. A2 of spring transitition function F() (lb.)
BTSNEG(j)								exp. Coeff. B2 of spring transition function F() (1/in)
STKNEG(j)								rebound bump stop displacement (in.)
STKPOS(j)								jounce bump stop displacement (in).
	DAMPER DATA							
NDLOAD(j)								No. of data points in the damper curve loading portion
NDUNLD(j)								No. of data points in the damper curve unloading portior
ATDPOS(j)								coeff. A3 of damper transition function F() (lb.)
BTDPOS(j)								exp. Coeff. B3 of damper trans. function F() (sec./in)
ATDNEG(j)								coeff. A4 of damper trans. Function F() (lb.)
BTDNEG(j)								exp. Coeff. B4 of damper trans. Function F() (sec./in)

NOTE: Provide spring and damper data for each unique spring and each unique damper; one sheet per each spring and each damper. Include Jounce and Rebound bumpstop characteristics. Provide loading-unloading transition function coefficients when hysterisis data is available.

Spring/Damper Tables - DSUSb

NAME	VALUE							DESCRIPTION
I	1	2	3	4	5	6	7	loading/unloading point number
	8	9	10	11	12	13	14	
	SPRING DATA							
J								Spring No.
	Loading							
DELSLD(I,J)								Deflection (in.)
FORSLD(I,J)								Force (lbs.)
	Unloading							
DELSLD(I,J)								Deflection (in.)
FORSUN(I,J)								Force (lbs.)
	DAMPER DATA							
J								Damper No.
	Loading							
DDOTLD(I,J)								Velocity (in./sec.)
FORSLD(I,J)								Force (lbs.)
	Unloading							
DDOTUN(I,J)								Velocity (in./sec.)
FORSUN(I,J)								Force (lbs.)

NOTE: Provide loading-unloading transition functions when hysteresis data is available.

Damper Modification Coefficient (DMC) Tables - DSUSc

NAME	VALUE							DESCRIPTION
I	1	2	3	4	5	6	7	point number
	8	9	10	11	12	13	14	
	DAMPER DATA							
J								Damper No.
	Positive Velocities							
DELMDP(I,J)								Deflection (in.)
CFMODP(I,J)								Damper Force Modification Coefficient (DMC)
	Negative Velocities							
DELMDN(I,J)								Deflection (in.)
CFMODN(I,J)								Damper Force Modification Coefficient (DMC)

NOTE: Provide deflections for each Damper Modification Coefficient (DMC) for both positive and negative velocities.

Independent Suspension - DIND

NAME	VALUE	DESCRIPTION
LDBASE		Longitudinal distance from C.G. to the base of the driver's seat (+=forward, - rearward) (in.)
HDBASE		Normal distance from C.G. to the base of the driver's seat (+=above, -=below) (in.)
IFSEAT		Driver's Seat absorbed power flag: (1=w/o seat dynamics, 2=w/seat dynamics, 3=no absorbed power calculation)
		IF IFSEAT=2
DRVWGT		Combined weight of driver and driver's seat (lbs.)
HDSEAT		Normal Distance from the base of seat to sitting surface (in.)
ISDRV		No. of spring table for seat dynamics
IDDRV		No. of damper table for seat dynamics

NAME	VALUE							DESCRIPTION
I	1	2	3	4	5	6	7	No. of Independent Suspension
IINSTB(I)								No. of spring table
IINDTB(I)								No. of damper table
INDMTP(I)								No. of DMC table for positive velocities
INDMTN(I)								No. of DMC table for negative velocities

NOTE: All C.G. dimensions refer to the sprung mass, unless otherwise stated.

Bogie Suspension - DBG

NAME	VALUE						DESCRIPTION
J	**1**		**2**		**3**		No. of bogie suspension
I	1	2	1	2	1	2	No. of I-th wheel of the j-th bogie.
IBSTB(I,J)							No. of spring table used with I-th wheel of j-th bogie
IBDTB(I,J)							No. of damper table used with I-th wheel of j-th bogie
IBDMTP(I,J)							No. of DMC table (pos. vel.)
IBDMTN(I,J)							No. of DMC table (neg. vel.)

NOTE: Provide DMC-deflection table data when hysteresis is available.

Walking Beam Suspension - DWB

NAME	VALUE						DESCRIPTION
K	**1**		**2**		**3**		No. of walking beam suspension
IWBSTB(K)							No. of spring table used with k-th walking beam
IWBDTB(K)							No. of damper table used with k-th walking beam
IWMTP(K)							No. of DMC table (pos. vel.)
IWDMTN(K)							No. of DMC table (neg. vel.)
I	1	2	1	2	1	2	No. of I-th wheel of the k-th walking beam.
IWODTB(I,K)							No. of damper table used with I-th wheel of k-th WB
IWOMTP(I,K)							No. of DMC (pos. vel.) used with I-th wheel of k-th WB
IWOMTN(I,K)							No. of DMC (neg. vel.) used with I-th wheel of k-th WB

NOTE: Provide DMC-deflection table data for displacement dependent dampers only.

Wheel/Track Data - GWTR

NAME	VALUE							DESCRIPTION
J	1	2	3	4	5	6	7	No. of tired wheel or track roadwheel
R(J)								Undeflected radius of j-th wheel/track RW + track (in.)
W(J)								Unsprung mass/weight of j-th wheel/axle/track RW (lb)
LWHL(J)								Long. Dis. Of j-th tire/track RW from CG (in.)
DEFL(J)								Static Defl. Of j-th tire/track RW rubber (in.)
ZFORCE(J)								Force related to static defl. Of DEFL
FUNDWL(J)								Ground Force beneath j-th wheel/track RW (lbs.)
IDRIVE(J)								Powered flag (1=yes, 0=no)

NOTE: 1) All CG dimensions refer to the sprung mass, unless otherwise noted, 2) All weights are for only one side of the vehicle, 3) Unsprung mass weights should include 1/2 the axle and suspension component weights for wheeled vehicles and 1/2 the suspension component weight for tracked vehicles, 4) Ground reaction force, FUNDWL(J), should EXCLUDE the track on the ground for tracked vehicles.

Geometry - Wheeled Vehicle - HWVa

NAME	VALUE			DESCRIPTION
	PRIME MOVER UNIT	TRAILER UNIT	PRIME MOVER & TRAILER	
VULEN(I)				Total length of each unit and combined length of both units
TL		N/A		Distance from 1st axle c.l. of 1st unit to rearmost axle c.l. of 1st unit or 2nd unit (in.)
WDTH		N/A		Max. width of 1st unit or overall width of 1st & 2nd units (in.)
REFHT1		N/A		Height of hitch above ground of 1st unit or of combined units (in.)
HTCHFZ	N/A		N/A	Vertical force on the hitch exerted by the trailer (tongue weight) (lbs.)
PBHT		N/A	N/A	Height of the 1st unit pushbar (front fender) above the ground (in.)
EYEHGT		N/A	N/A	Height of the driver's eye above the ground of the first unit (in.)
CGLAT		N/A		Lateral distance of the CG from 1st unit c.l. or from the combined units c.l. (in.)
CGH		N/A		Vertical distance of CG of loaded 1st unit or loaded combined units from ground (in.)
CL		N/A		Minimum chassis clearance of the 1st unit or of combined units (in.)
CGR		N/A	N/A	Horizontal distance from CG to rearmost axle of Primemover only (in.)
VAA		N/A	N/A	Approach angle of the Primemover only (deg)
VDA		N/A	N/A	Departure angle of the Primemover only (deg)
CGZ1,CGZ2			N/A	*Vertical height from the ground of the CG of the unloaded 1st & 2nd units (in.)
DEE1,DEE2			N/A	*Horizontal distance from the hitch to the CG of the payload of 1st & 2nd units (in.)
ZEE1,ZEE2			N/A	*Vertical distance from the ground to CG of payload of 1st & 2nd units (in.)
DELTW1,DELTW2			N/A	*Weight of the payload of 1st & 2nd units (lbs.)

* NOTE: c.l. = centerline. The C.G. data may be submitted for the vehicle at gross vehicle weights. In this case, values for DEE1, DEE2, ZEE1, ZEE2, DELTW1, and DELTW2 may be omitted. The ground reaction force, EQUILF(I) (see HTRb), then represents the gross vehicle weights' ground reaction force at suspension support I.

Geometry Wheeled Vehicle - HWVb

NAME	VALUE	DESCRIPTION
NUNITS		Total number of 1st & 2nd units
NSUSP		Total number of suspension supports

NAME	VALUE						DESCRIPTION
I	**1**		**2**		**3**		No. of suspension support
SFLAG(I)							Suspension type (0=independent, 1=bogie)
EFFRAD(I)							Effective loaded radius of wheels at support I (in.)
ELL(I)							Horizontal distance of suspension support I w.r.t. the hitch (in.)
BWIDTH(I)							Bogie swing arm width at suspension support I (0 if no bogie) (in.)
BALMU(I)							CCW angle limit of bogie at (deg.)
BALMD(I)							CW angle limit (neg. if front below rear at extreme pos.) (deg).
EQUILF(I)							Ground reaction force when vehicle is empty (lbs.)
J	1	2	1	2	1	2	I-th suspension support wheel number
IP(I,J)							Power indicator (0=unpowered, 1=powered)
IB(I,J)							Braked indicator (0=unbraked, 1=braked)

NOTE: If CG locations for gross vehicle weights are used, see HWVa, the ground reaction force at suspension support I, represents the vehicle gross weights also.

Geometry Tracked Vehicle - HTRa

NAME	VALUE			DESCRIPTION
	PRIME MOVER UNIT	TRAILER UNIT	PRIME MOVER & TRAILER	
VULEN				Total length of each unit and combined length of both units
TL		N/A		Distance from 1st roadwheel c.l.to rearmost roadwheel c.l. (in.)
WDTH		N/A		Max. overall width of 1st & 2nd units (in.)
PBHT		N/A	N/A	Height of the 1st unit pushbar (front fender) above the ground (in.)
EYEHGT		N/A	N/A	Height of the driver's eye above the ground (in.)
CGLAT		N/A		Lateral distance of the CG from 1st & 2nd unit c.l.'s (in.)
CGH		N/A		Vertical distance of CG of loaded 1st unit or loaded combined units from ground (in.)
CL		N/A		Minimum chassis clearance (in.)
CGR		N/A	N/A	Horizontal distance from CG to rearmost axle of Primemover only (in.)
VAA		N/A	N/A	Approach angle of the Primemover only (deg)
VDA		N/A	N/A	Departure angle of the Primemover only (deg)

NOTE: All reference dimensions to the C.G. refer to the vehicle SYSTEM CG.

Geometry Tracked Vehicle - HTRb

NAME	VALUE	DESCRIPTION
NUNITS		Total number of 1st & 2nd units
NSUSP		Total number of suspension supports

NAME	VALUE										DESCRIPTION
I	**1**		**2**		**3 (Trailer)**		**4 (Front)**		**5 (Rear)**		No. of suspension support
SFLAG(I)	1		1				0		0		Suspension type (0=independent, 1=bogie)
EFFRAD(I)											Effective loaded roadwheel radius (include track thickness) (in.)
ELL(I)									0		Horizontal distance of suspension support I w.r.t. the rear spridler c.l. (in.)
ZS(4),ZS(5)	0		0		0						Vertical distance from ground to front/rear sprocket/idler (in.)
BWIDTH(I)							0		0		Bogie swing arm width at suspension support I (0 if no bogie) (in.)
BALMU(I)							0		0		CCW angle limit of bogie(deg.)
BALMD(I)							0		0		CW angle limit (neg. if front below rear at extreme pos.) (deg).
EQUILF(I)							0		0		Ground reaction force (in.)
J	1	2	1	2	1	2	1	2	1	2	I-th suspension support wheel number
IP(I,J)							1	0	1	0	Power indicator (0=unpowered, 1=powered)
IB(I,J)							1	0	1	0	Braked indicator (0=unbraked, 1=braked)

NOTE: c.l.=centerline, CCW=counter clockwise, CW=clockwise. All reference dimensions to the C.G. refer to the vehicle SYSTEM CG.

Geometry Bottom Profiles - HPRF

NAME	VALUE							DESCRIPTION
J	1	2	3	4	5	6	7	Coordinate index
	8	9	10	11	12	13	14	
	15	16	17	18	19	20	21	
	First Unit Bottom Profile							
XCLC1(J)								X coordinate
YCLC1(J)								Y coordinate
	Second Unit Bottom Profile							
XCLC2(J)								X coordinate
YCLC2(J)								Y coordinate

NOTE: Clearance contour reference point is: 1) pintle or fifth wheel for wheeled vehicles, 2) centerline of rear sprocket/idler for tracked vehicles. X measurements begin at the FRONT of a vehicle. X value at reference point thus is zero. All trailer values are negative. All Y values are measured from the ground for the tire deflection cases for C-G (sand) and other soils off-road.

Highway Characteristics & Mobility Assist Systems - JHWY

NAME	VALUE	DESCRIPTION
ACD		Aerodynamic drag coefficient (drag=0.5p(Cd)Av*v)
PFA		Projected frontal area (ft.*ft.=ft.^2)
AVGC		Tire corning stiffness at highway tire inflation pressure and load (use 10% of tire operating load if unavailable) (lb./deg.)
WC		If winch present, whinch capacity (lbs.)
PBF		Pushbar/bumper capacity (lbs.) (Estimated as twice the GVW)

NOTE: Drag=qA(Cd) where q=0.5pV^2

Engine/Torque Converter Description - POWa

NAME	VALUE	DESCRIPTION
NENG		No. of Engines
NCYL		No. of cylinders per engine (Use NCYL=8 for Gas Turbine)
CID		Displacement per engine (in.^3)
LOCKUP		Torque converter has lockup clutch (0=no, 1=yes).

NAME	VALUE			DESCRIPTION
I	1	2	3	No. of Engine
IDIESL(I)				Engine Type (0=unknown assume 1, 1=gasoline or 4-stroke diesel, 2=2-stroke diesel, 3=turbine)
RPM				Engine Speed
HPNET(I)				Net Horsepower (Use rated horsepower for turbine engine)
RPM				Engine Speed
QMAX(I)				Maximum engine Torque

NOTE:

Torque Converter Characteristics - POWb

NAME	VALUE	DESCRIPTION
TQIND		Torque at which converter input RPM vs. speed ratio were measured (lb.-ft)
ICONV1		No. of points in array CONV1(I,J)
ICONV2		No. of points in array CONV2(I,J)

NAME	VALUE							DESCRIPTION
J	1	2	3	4	5	6	7	Coordinate index
	8	9	10	11	12	13	14	
	15	16	17	18	19	20	21	
CONV1(1,J)								Torque Conv. Input RPM
CONV1(2,J)								Speed Ratio
CONV2(1,J)								Torque Ratio
CONV2(2,J)								Speed Ratio

NOTE:

Engine RPM/Torque - POWc

NAME	VALUE	DESCRIPTION
IENGIN		No. points in engine torque vs. speed curve ENGINE(I,J)
		If Engine to transmission gear:
TCASE(1)		Gear ratio
TCASE(2)		Efficiency (%)

NAME	VALUE							DESCRIPTION
J	1	2	3	4	5	6	7	
	8	9	10	11	12	13	14	
	15	16	17	18	19	20	21	
ENGINE(1,J)								Engine Speed (RPM)
ENGINE(2,J)								Engine Torque (Net less accessory losses) (lb-ft.)

NOTE:

Transmission/Transfer Case Ratios & Efficiencies - POWd

NAME	VALUE										DESCRIPTION
GR/JTRANG	1	2	3	4	5	6	7	8	9	10	Gear No./Range
	Transmission										
		Description/identification									
NGR		No. of gears									
ITVAR		Shift Flag (0=automatically, 1=manually)									
	Range 1										
											Gear ratio
											Efficiency (%)
	Range 2										
											Gear ratio
											Efficiency (%)
	Range 3										
											Gear ratio
											Efficiency (%)
	Transfer Case										
		Description/identification									
NTRANG		No. of transfer case gear range gear ratios & efficiencies									
				T.C. Ratio for each range							
				Efficiency (%) for each range							

NOTE: T.C.=Transfer Case

Transmission/Transfer Case/Final Drive Ratios - POWe

NAME	VALUE										DESCRIPTION
GR	1	2	3	4	5	6	7	8	9	10	Gear No.
	Combined Transmission/Transfer Case Ratios and Efficiencies										
TRANS	Combined ratios and efficiencies for Range 1										
(1,GR,1)											Gear Ratio
(2,GR,1)											Efficiency (%)
TRANS	Combined ratios and efficiencies for Range 2										
(1,GR,2)											Gear Ratio
(2,GR,2)											Efficiency (%)
TRANS	Combined ratios and efficiencies for Range 3										
(1,GR,3)											Gear Ratio
(2,GR,3)											Efficiency (%)

	Final Drive	
		Description/identification
LOCDIF		Locking differential flag (0=no, 1=yes)
FD(1)		Gear Ratio
FD(2)		Efficiency (%)

NOTE: The combined transmission and transfer range gear ratios from data sheet POWd form the variable: TRANS(1..2,NGR,NTRANG). Combine the values from data sheet POWd to form the variables TRANS(1,NGR,NTRANG), TRANS(2,NGR, NTRANG). The final drive variable FD(I) contains only the ratio and efficiency of the final drive.

Tractive Force vs. Speed - POWf

NAME	VALUE									DESCRIPTION
J	1	2	3	4	5	6	7	8	9	Point pair index
	10	11	12	13	14	15	16	17	18	
	19	20	21	22	23	24	25	26	27	
	28	29	30	31	32	33	34	35	36	
	37	38	39	40	41	42	43	44	45	
	46	47	48	49	50	51	52	53	54	
JTRANG		Data for Transfer Case Gear Range No.								
IPOWER		No. of Tractive effort vs. speed point pairs								
	POWER(1,J,JTRANG)									
										Vehicle Speed (MPH)
	POWER(2,J,JTRANG)									
										Tractive Force (lbs)
										Gear No. for each point

NOTE: Provide at least 4 point pairs per gear.

Transfer Case Operating Range Scenarios - POWg

NAME	VALUE	DESCRIPTION
		Transfer Case Operating Range (1..NTRANG) for:
KTROPR(1)		Super highways and primary roads
KTROPR(2)		secondary roads
KTROPR(3)		CG (sand) soils on trails
KTROPR(4)		Other soils on trails
KTROPR(5)		Operation in snow on trails
KTROPR(6)		CG (sand) soils off-road
KTROPR(7)		Other soils off-road
KTROPR(8)		Operation in snow off-road

NOTE: Transfer gear case operating range scenarios relate to the CTIS scenarios of data sheet BW1f..

Obstacle Speed vs. Height Data - VOBS

NAME	VALUE									DESCRIPTION
I	1	2	3	4	5	6	7	8	9	Point pair index
	10	11	12	13	14	15	16	17	18	
NHVALS		No. of obstacle height values								
HVALS(I)										Obstacle Height (in.)
VOOB(I,1)										Max. Speed (MPH)
VOOB(I,2)										Max. Speed (MPH)
VOOB(I,3)										Max. Speed (MPH)
VOOB(I,4)										Max. Speed (MPH)
VOOB(I,5)										Max. Speed (MPH)
VOOB(I,6)										Max. Speed (MPH)
VOOB(I,7)										Max. Speed (MPH)
VOOB(I,8)										Max. Speed (MPH)

		Index of Obstacle Height vs. speed table for:
KOHIND(1)		Super highways and primary roads
KOHIND(2)		secondary roads
KOHIND(3)		CG (sand) soils on trails
KOHIND(4)		Other soils on trails
KOHIND(5)		Operation in snow on trails
KOHIND(6)		CG (sand) soils off-road
KOHIND(7)		Other soils off-road
KOHIND(8)		Operation in snow off-road

NOTE:

Surface Roughness vs. Speed Data - VRIDa

NAME	VALUE									DESCRIPTION
I	1	2	3	4	5	6	7	8	9	Point pair index
	10	11	12	13	14	15	16	17	18	
MAXL		No. of ride tolerance levels in the ride data								
ABSPWR(1)		Abosrbed Power value in Watts for these curves (NRLVL=1)								
MAXIPR		No. of surface roughness values								
RMS(I)										Roughness (in.)
VRIDE(I,1,NRLVL)										Max. Speed (MPH)
VRIDE(I,2,NRLVL)										Max. Speed (MPH)
VRIDE(I,3,NRLVL)										Max. Speed (MPH)
VRIDE(I,4,NRLVL)										Max. Speed (MPH)
VRIDE(I,5,NRLVL)										Max. Speed (MPH)
VRIDE(I,6,NRLVL)										Max. Speed (MPH)
VRIDE(I,7,NRLVL)										Max. Speed (MPH)
VRIDE(I,8,NRLVL)										Max. Speed (MPH)

		Index of Roughness vs. speed table for:
KVRIND(1)		Super highways and primary roads
KVRIND(2)		secondary roads
KVRIND(3)		CG (sand) soils on trails
KVRIND(4)		Other soils on trails
KVRIND(5)		Operation in snow on trails
KVRIND(6)		CG (sand) soils off-road
KVRIND(7)		Other soils off-road
KVRIND(8)		Operation in snow off-road

NOTE: If there is more than one tolerance level, then the number of point pairs remain the same for all.

Surface Roughness vs. Speed Data - VRIDb

NAME	VALUE									DES CRIPTION
I	1	2	3	4	5	6	7	8	9	Point pair index
	10	11	12	13	14	15	16	17	18	
ABSPWR(2)		Abosrbed Power value in Watts for these curves (NRLVL=2)								
RMS(I)										Roughness (in.)
VRIDE(I,1,NRLVL)										Max. Speed (MPH)
VRIDE(I,2,NRLVL)										Max. Speed (MPH)
VRIDE(I,3,NRLVL)										Max. Speed (MPH)
VRIDE(I,4,NRLVL)										Max. Speed (MPH)
VRIDE(I,5,NRLVL)										Max. Speed (MPH)
VRIDE(I,6,NRLVL)										Max. Speed (MPH)
VRIDE(I,7,NRLVL)										Max. Speed (MPH)
VRIDE(I,8,NRLVL)										Max. Speed (MPH)

NOTE: If there is more than one tolerance level, then the number of point pairs remain the same for all.

Surface Roughness vs. Speed Data - VRIDc

NAME	VALUE									DESCRIPTION
I	1	2	3	4	5	6	7	8	9	Point pair index
	10	11	12	13	14	15	16	17	18	
ABSPWR(3)		Abosrbed Power value in Watts for these curves (NRLVL=3)								
RMS(I)										Roughness (in.)
VRIDE(I,1,NRLVL)										Max. Speed (MPH)
VRIDE(I,2,NRLVL)										Max. Speed (MPH)
VRIDE(I,3,NRLVL)										Max. Speed (MPH)
VRIDE(I,4,NRLVL)										Max. Speed (MPH)
VRIDE(I,5,NRLVL)										Max. Speed (MPH)
VRIDE(I,6,NRLVL)										Max. Speed (MPH)
VRIDE(I,7,NRLVL)										Max. Speed (MPH)
VRIDE(I,8,NRLVL)										Max. Speed (MPH)

NOTE: If there is more than one tolerance level, then the number of point pairs remain the same for all.

Water Crossing Characteristics - WCR1

NAME	VALUE	DESCRIPTION
FORDD		Max. fording depth (in.)
VFS		Swamping speed at fording depth (MPH)
WRFORD		Percent of vehicle weight on ground at max. fording depth (%)
CD		Hydrodynamic drag coefficient
SAI		Ingress swamp angle (degrees)
SAE		Egress Swamp angle (degrees)
VSS		Max. swim speed without auxiliary propulsion (MPH)
		Water line length (in.)
		Beam (in.)
		Min. freeboard (in.)
DRAFT		Height of water line above ground when fully floating (in.)
		Auxiliary Propulsion (Yes/No) (if yes type (propeller, water jet, kort nozzle, other)
VSSAXP		Max. speed with auxiliary propulsion (MPH)
WWAXP		Water width required to use auxiliary propulsion (in.)
WDAXP		Water depth required to use auxiliary propulsion (in.)
		Vehicle swim or float (Yes/No)
		Hull Type (Boat, barge, box)

NOTE: Water crossing characteristics required on an as needed basis per particular system specification as defined in an RFP.

Water Crossing Characteristics - WCR2

NAME	VALUE							DESCRIPTION
J	1	2	3	4	5	6	7	
	8	9	10	11	12	13	14	
	15	16	17	18	19	20	21	
WDPTH(J)								Water depth
WRAT(J)								Percent weight on running gear

NOTE: Water depth vs percent of vehicle weight supported on the running gear: ratio of ((GVW - buoyant weight)/GWV) x 100%. At zero water depth, 100% of the gross vehicle weight is supported on the running gear. At fully floating, 0% of GVW is supported on the running gear. Water crossing characteristics required on an as needed basis per particular system specification as defined in an RFP.